

AD-A144 626

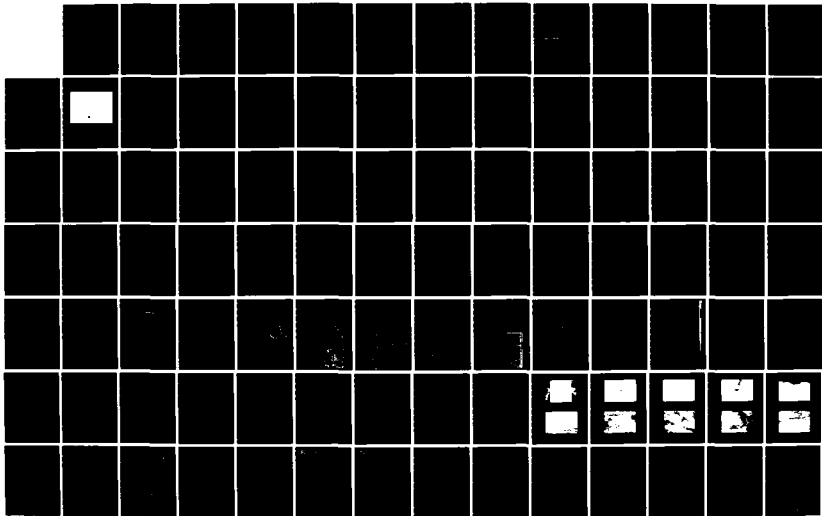
NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS
POMEROY DAM (CT 00479) (U) CORPS OF ENGINEERS WALTHAM
MA NEW ENGLAND DIV FEB 81

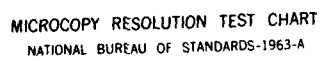
1/1

UNCLASSIFIED

F/G 13/3

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AD-A144 626

THAMES RIVER BASIN
STAFFORD, CONNECTICUT

POMEROY DAM
CT 00479

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION REPORT

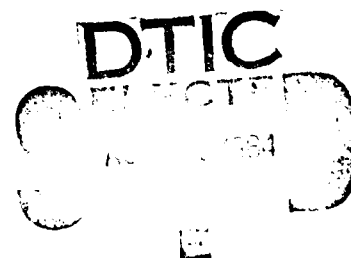
DTIC FILE COPY



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

84

44



This document is not to be distributed outside the Department of the Army without the approval of the Department of the Army.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER CT 00479	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Pomeroy Dam NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS		5. TYPE OF REPORT & PERIOD COVERED INSPECTION REPORT
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DEPT. OF THE ARMY, CORPS OF ENGINEERS NEW ENGLAND DIVISION, NEDED 424 TRAPELO ROAD, WALTHAM, MA. 02254		12. REPORT DATE February 1981
		13. NUMBER OF PAGES 65
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) APPROVAL FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES Cover program reads: Phase I Inspection Report, National Dam Inspection Program; however, the official title of the program is: National Program for Inspection of Non-Federal Dams; use cover date for date of report.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) DAMS, INSPECTION, DAM SAFETY, Thames River Basin Stafford, Connecticut		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Pomeroy Dam consists of a 535 foot long earth embankment and a 150 foot wide grassed emergency spillway. Maximum height of dam is 37 feet with a maximum storage capacity of 710 acre-feet at crest elevation. Therefore, the size classification is SMALL. Hazard classification for Pomeroy Dam is HIGH. Corps of Engineers Guidelines recommend a test flood of $\frac{1}{2}$ PMF to PMF.		



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254

REPLY TO
ATTENTION OF:

NEDED

AUG 31 1981

Honorable William A. O'Neill
Governor of the State of Connecticut
State Capitol
Hartford, Connecticut 06115

Dear Governor O'Neill:

Inclosed is a copy of the Pomeroy Dam (CT-00479) Phase I Inspection Report, prepared under the National Program for Inspection of Non-Federal Dams. This report is based upon a visual inspection, a review of the past performance and a brief hydrological study of the dam. I approve the report and support the findings and recommendations described in Section 7 and ask that you keep me informed of the actions taken to implement them. This follow-up action is vitally important.

Copies of this report have been forwarded to the Department of Environmental Protection, and to the owner, State of Connecticut, Department of Environmental Protection. Copies will be available to the public in thirty days.

I wish to thank you and the Department of Environmental Protection for your cooperation in this program.

Sincerely,

C. E. EDGAR, III
Colonel, Corps of Engineers
Commander and Division Engineer

Incl
As stated



Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution _____	
Availability Codes	
Dist	Avail and/or Special
A-1	

THAMES RIVER BASIN
STAFFORD, CONNECTICUT

POMEROY DAM

CT 00479

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

NATIONAL DAM INSPECTION PROGRAM

PHASE I INSPECTION REPORT

Identification No:	CT 00479
Name of Dam:	Pomeroy Dam
Town:	Stafford
County and State:	Tolland, CT
Stream:	McIntyres Brook
Date of Inspection:	17 February, 1981

BRIEF ASSESSMENT

Pomeroy Dam consists of a 535 foot long earth embankment and a 150 foot wide grassed emergency spillway. The outlet consists of a concrete riser with 6 foot long weirs on each side and a 24-inch reinforced concrete outlet pipe discharging to McIntyres Brook at the toe of dam.

Construction of this dam was completed in 1960 for the Connecticut Department of Agriculture and National Resources (now the Department of Environmental Protection). The dam was constructed for the purpose of flood control.

Maximum height of dam is 37 feet with a maximum storage capacity of 710 acre-feet at crest elevation. Therefore, the size classification is SMALL.

The area of probable dam failure impact encompasses parts of Handel Road and Connecticut Route No. 30 along with five houses along Route 30. Hazard classification for Pomeroy Dam is HIGH.

Corps of Engineers Guidelines recommend a test flood of $\frac{1}{2}$ Probable Maximum Flood (PMF) to PMF. Probable maximum flood in this area is 3450 cfs.

The Soil Conservation Service design for this dam used a rainfall of 15 inches and a runoff of 13.5 inches for the emergency spillway design. The design flood for Pomeroy Dam results in a peak inflow of 3,420 cfs. and a peak outflow of 2,050 cfs. This design flood was used as the test flood for Pomeroy Dam.

Based on the visual inspection, Pomeroy Dam appears to be in good condition. There is one small tree on the downstream slope and a rodent burrow at the end of the emergency spillway channel. The plans show a slide gate at the inlet to the principal spillway but it was not installed. Maintenance practices at Pomeroy Dam appear to be good.

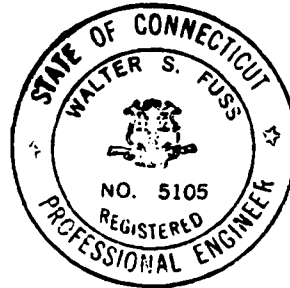
It is recommended that the owner continue present maintenance practices; remove the tree on the downstream slope; eliminate existing rodent burrow; monitor dam during flood events to check for seepage; monitor flow from foundation drains; institute biennial technical inspections.

Recommendations and remedial measures listed above and detailed in Section 7 should be implemented by the Owner within two years after receipt of this


Phase I Inspection Report.


FUSS & O'NEILL, INC.

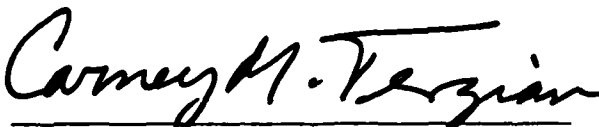
BY Walter S. Fuss
Walter S. Fuss, P.E.
President



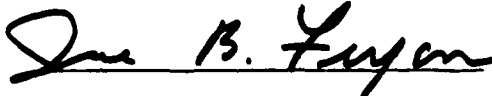
This Phase I Inspection Report on POMEROY DAM (CT-00479) has been reviewed by the undersigned Review Board members. In our opinion, the reported findings, conclusions, and recommendations are consistent with the Recommended Guidelines for Safety Inspection of Dams, and with good engineering judgement and practice, and is hereby submitted for approval.


JOSEPH W. FINEGAN, JR. MEMBER
Water Control Branch
Engineering Division


ARAMAST MAHTESIAN, MEMBER
Geotechnical Engineering Branch
Engineering Division


CARNEY M. TERZIAN, CHAIRMAN
Design Branch
Engineering Division

APPROVAL RECOMMENDED:


JOE B. FRYAR
Chief, Engineering Division

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I investigation: however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition

of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

The Phase I Investigation does not include an assessment of the need for fences, gates, no-trespassing signs, repairs to existing fences and railings and other items which may be needed to minimize trespass and provide greater security for the facility and safety to the public. An evaluation of the project for compliance with OSHA rules and regulations is also excluded.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Letter of Transmittal	
Brief Assessment	
Review Board Page	
Preface	i
Table of Contents	iii
Overview Photo	vi
Location Map	vii

REPORT

1. PROJECT INFORMATION

1.1 General	1
a. Authority	
b. Purpose of Inspection	
1.2 Description of Project	2
a. Location	
b. Description of Dam and Appurtenances	
c. Size Classification	
d. Hazard Classification	
e. Ownership	
f. Operator	
g. Purpose of Dam	
h. Design and Construction History	
i. Normal Operational Procedure	

1.3 Pertinent Data	5
--------------------	---

2. ENGINEERING DATA

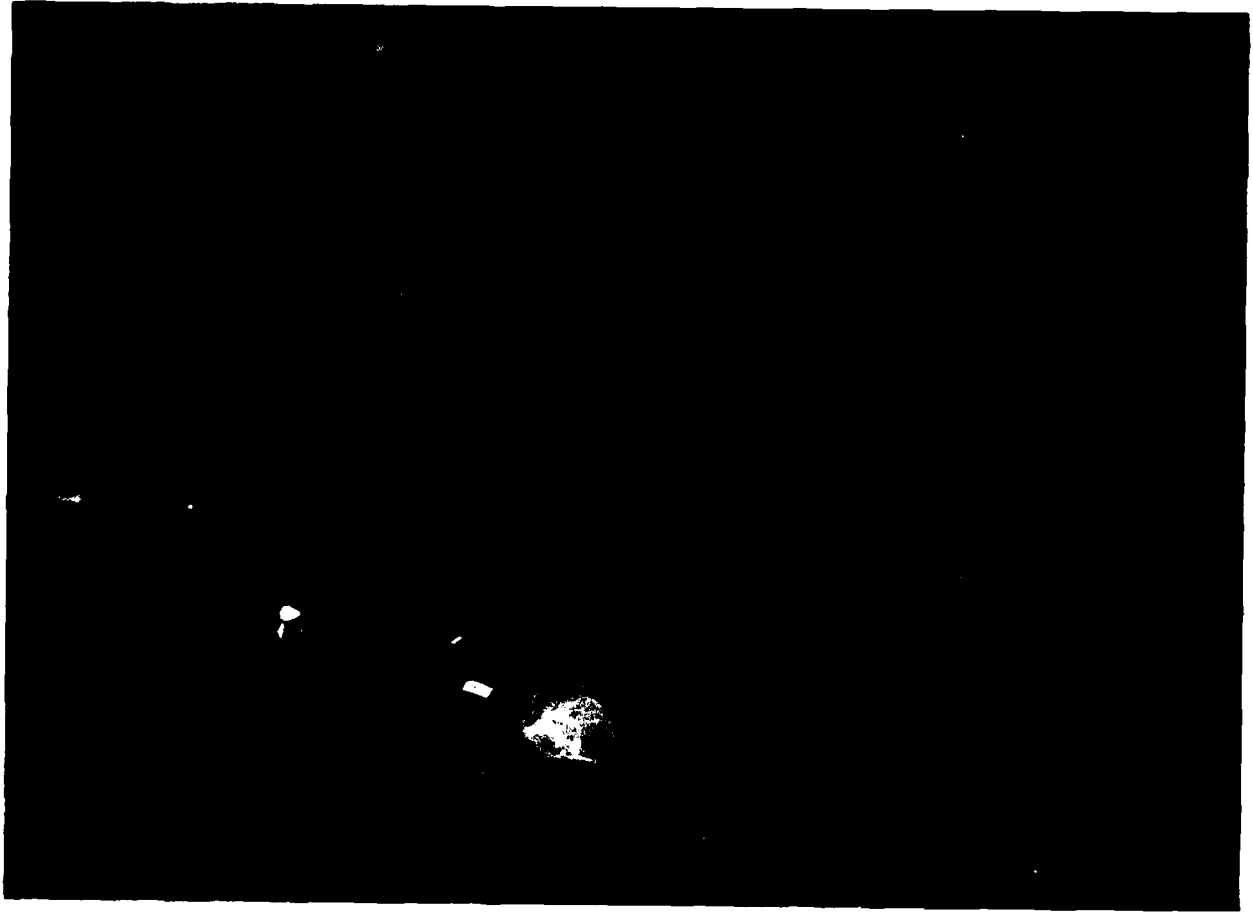
2.1 Design Data	10
2.2 Construction Data	10

<u>Section</u>	<u>Page</u>
2.3 Operational Data	11
2.4 Evaluation of Data	11
3. VISUAL INSPECTION	
3.1 Findings	12
a. General	
b. Dam	
c. Appurtenant Structures	
d. Reservoir Area	
e. Downstream Channel	
3.2 Evaluation	15
4. OPERATIONAL AND MAINTENANCE PROCEDURES	
4.1 Operational Procedures	15
a. General	
b. Description of any Warning System in Effect	
4.2 Maintenance Procedures	16
a. General	
b. Operating Facilities	
4.3 Evaluation	17
5. EVALUATION OF HYDRAULIC/HYDROLOGIC FEATURES	
5.1 General	18
5.2 Design Data	18
5.3 Experience Data	19
5.4 Test Flood Analysis	19
5.5 Dam Failure Analysis	20

<u>Section</u>	<u>Page</u>
6. EVALUATION OF STRUCTURAL STABILITY	
6.1 Visual Observation	22
6.2 Design and Construction Data	22
6.3 Post-Construction Changes	22
6.4 Seismic Stability	22
7. ASSESSMENT, RECOMMENDATIONS AND REMEDIAL MEASURES	
7.1 Dam Assessment	23
a. Condition	
b. Adequacy of Information	
c. Urgency	
7.2 Recommendations	23
7.3 Remedial Measures	23
a. Operation and Maintenance Procedures	
7.4 Alternatives	24

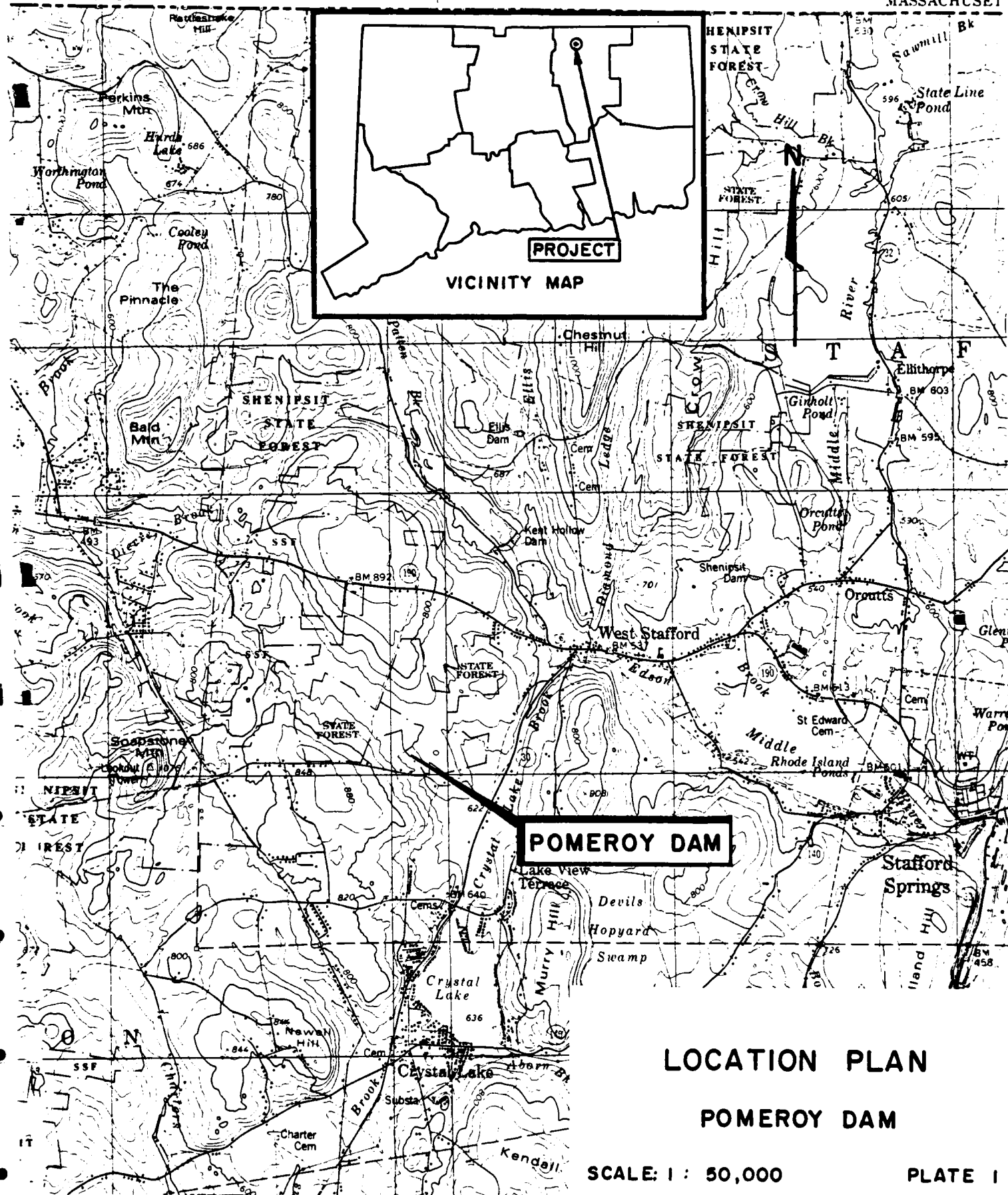
APPENDICES

<u>Appendix</u>	<u>Description</u>
A	INSPECTION CHECKLIST
B	ENGINEERING DATA
C	PHOTOGRAPHS
D	HYDROLOGIC AND HYDRAULIC COMPUTATIONS
E	INFORMATION AS CONTAINED IN THE NATIONAL INVENTORY OF DAMS



OVERVIEW PHOTO

MASSACHUSET



POMEROY DAM

PLATE I

NATIONAL DAM INSPECTION PROGRAM
PHASE I INSPECTION REPORT
POMEROY DAM CT 00479

SECTION 1 - PROJECT INFORMATION

1.1 GENERAL:

a. Authority. Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a national program of dam inspection through the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Fuss & O'Neill, Inc. has been retained by the New England Division to inspect and report on selected dams in the State of Connecticut. Authorization and notice to proceed was issued to Fuss & O'Neill, Inc. under a letter of 25 November, 1980 from William E. Hodgson, Jr., Colonel, Corps of Engineers. Contract No. DACW33-81-C-0020 has been assigned by the Corps of Engineers for this work.

b. Purpose.

1. Perform technical inspection and evaluation of non-federal dams to identify conditions which threaten the public safety and thus permit correction in a timely manner by non-federal interests.
2. Encourage and assist the States to initiate quickly effective dam safety programs for non-federal dams.
3. To update, verify and complete the National Inventory of Dams.

1.2 DESCRIPTION OF PROJECT:

- a. Location. Pomeroy Dam is located in the Town of Stafford, County of Tolland, State of Connecticut. The dam is located at Latitude 41°-57'-37" and Longitude 72°-22'-49". Pomeroy Dam impounds flow in McIntyres Brook, with a 1.5 square mile watershed. About 0.9 miles downstream of the dam, McIntyres Brook joins Crystal Lake Brook. About 1.7 miles below this point, Crystal Lake Brook joins Edson Brook which flows into Middle River about 1.6 miles further downstream. Middle River joins with Furnace Brook to form the Willimantic River 6.7 miles below Pomeroy Dam. Pomeroy Dam is located about 800 feet north of Handel Road and 3,600 feet northwest of Connecticut Route 30. This structure is for flood control and, except during storms, the pool is dry. The detention pool runs northwesterly from the dam.
- b. Description of Dam and Appurtenances. Pomeroy Dam is about 535 feet in length with a top width of 14 feet. The structure is a homogeneous earth embankment using a local borrow material with a maximum height of 37 feet. Upstream slopes are 1.0 vertical to 3.0 horizontal and downstream slopes are 1.0 vertical and 2.0 horizontal. Top of dam elevation is 681.2

The emergency spillway is grass lined with a crest 5.1 feet below the top of dam (elevation 676.1). Spillway bottom width is 150 feet with side slopes of 1.0 vertical to 3.0 horizontal and is located at the east end of the dam. The upstream 150 feet of the spillway is level with the remaining 170 feet at a 2.8% slope.

The principal spillway consists of a reinforced concrete riser with 6.0 foot weirs on each side, parallel to the stream flow and at elevation 651.0. There is an 18 inch opening in the upstream face of the riser with the invert at the bottom of the approach channel at elevation 645.9. Construction plans included a slide gate at this opening, but the gate was not installed. A 24-inch reinforced concrete water pipe 201 feet long discharges from the riser at elevation 645.9, to the natural channel of McIntyres Brook.

The dam embankment spans the natural stream valley with the emergency spillway cut into natural ground.

- c. Size Classification. Height of dam is 37 feet from crest of dam to bed of outlet channel and the total storage volume is 710 acre-feet. Pomeroy Dam is therefore classified as a SMALL structure in accordance with the recommended guidelines of the Corps of Engineers. Small structures are those with heights from 25 to 39

feet and/or storage volumes from 50 to 1000 acre-feet.

- d. Hazard Classification. Pomeroy Dam is classified as having a HIGH hazard potential because it is located in a rural area about 4,500 feet upstream of Connecticut Route No. 30 and the failure discharge can cause damage due to high velocity, impact from debris and flooding to five houses, Handel Road and Route 30. A failure discharge could cause the loss of more than a few lives.

Estimated water depth due to the possible dam failure discharge of 36,300 cfs. may range from 21.7 feet just below the dam to 6.4 feet 4,500 feet downstream at Connecticut Route 30.

In the vicinity of Route No. 30, the pre-failure water height would be 622.3 and the post-failure height would be 625.4.

- e. Ownership. Pomeroy Dam is owned by the State of Connecticut and is maintained by the Department of Environmental Protection.
- f. Operator. Operating personnel are under the direction of:

John Spencer
Region 3 Director
Department of Environmental Protection
Marlborough, CT 06447
Telephone: (203) 295-9523

- g. Purpose of Dam. Pomeroy Dam is a flood control dam to reduce damage in Stafford Springs due to flooding from Furnace Brook and Middle River. Since this is essentially a dry dam, flood control is the only present use.
- h. Design and Construction History. Construction of this facility was completed in 1960. The dam was designed by the U.S. Department of Agriculture, Soil Conservation Service for the Connecticut Department of Agriculture and Natural Resources.
- i. Normal Operating Procedure. This facility is dry except during periods of storm flow. Water enters the outlet structure by passing over fixed weirs in the principal spillway riser. Therefore, operation is automatic.

1.3 PERTINENT DATA:

- a. Drainage Area. Pomeroy Dam is located in Tolland County in northeastern Connecticut with a drainage basin that is generally rectangular in shape with a length of about 1.5 miles, a width of about 1.0 miles and a total area of 1.5 square miles. The area is rolling with elevations from 760 to 900 feet and is rural. There are no significant storage areas to dampen the flows.
- b. Discharge at Dam Site. There is no history of discharge data available for this dam. Listed below are calculated discharge

data for the ungated principal spillway and the ungated emergency spillway. There are no outlet works or gated spillways.

1.	Outlet Works:	N/A
2.	Maximum known flood at dam site:	Unknown
3.	Ungated spillway capacity at top of dam elevation 681.2	
	a. Principal Spillway	75 cfs.
	b. Emergency Spillway	4,320 cfs.
4.	Ungated spillway capacity at test flood elevation 679.45	
	a. Principal Spillway	70 cfs.
	b. Emergency Spillway	1,980 cfs.
5.	Gated Spillway at Normal pool elevation	N/A
6.	Gated spillway at test flood elevation	N/A
7.	Total spillway capacity at test flood elevation 679.45	2,050 cfs.
8.	Total project discharge at top of dam elevation 681.2	4,395 cfs.
9.	Total project discharge at test flood elevation 679.45	2,050 cfs.
c.	Elevation (feet above N.G.V.D.)	
1.	Streambed at top of dam	644.0
2.	Bottom of cutoff	N/A
3.	Maximum Tailwater	Unknown

c. Elevation (continued)

4.	Normal pool	None
5.	Full flood control pool	676.1
6.	Emergency spillway crest	676.1
7.	Design surcharge	679.45
8.	Top of Dam	681.2
9.	Test flood surcharge	679.45

d. Reservoir (Length in feet)

1.	Normal pool	None
2.	Flood control pool	3100'
3.	Emergency spillway crest pool	3100'
4.	Top of dam pool	3750'
5.	Test flood pool	3450'

e. Storage (acre-feet)

1.	Normal pool	None
2.	Flood control pool	467
3.	Emergency spillway crest pool	467
4.	Top of dam pool	710
5.	Test flood pool	622

f. Reservoir Surface (acres)

1.	Normal pool	None
2.	Flood control pool	42

f. Reservoir Surface (continued)

3.	Emergency spillway crest	42
4.	Test flood pool	50
5.	Top of dam	54

g. Dam.

1.	Type	Earth Embankment
2.	Length	535
3.	Height	37'
4.	Top width	14'
5.	Side slopes	Upstream 3H:1V Downstream 2H:1V
6.	Zoning	None
7.	Impervious Core	None
8.	Cutoff	None
9.	Grout curtain	None

h. Diversion and Regulatory Tunnel.

N/A

i. Spillway.

Principal Spillway

1.	Type	Concrete riser with side weirs
2.	Length of Weir	2 @ 6.0' = 12'
3.	Crest elevation	651.0

i. Principal Spillway (continued)

4.	Gates	None
5.	U/S Channel	Natural Bed
6.	D/S Channel	Natural Bed
7.	Design Surcharge	679.45

Emergency Spillway

1.	Type	Grass with 3H:1V side slopes
2.	Length of Weir	150' bottom width
3.	Crest elevation	676.1
4.	Gates	None
5.	U/S Channel	Grass
6.	D/S Channel	Grass
7.	Design Surcharge	679.45

j. Regulating Outlet.

1.	Invert	645.9
2.	Size	24" pipe
3.	Description	Pipe from bottom of spillway riser
4.	Control Mechanism	None
5.	Other	None

SECTION 2 - ENGINEERING DATA

2.1 DESIGN DATA:

Pomeroy Dam was designed by the United States Department of Agriculture, Soil Conservation Service for the Connecticut Department of Agriculture and Natural Resources. The following Design Data was used in the design of this dam:

Drainage Area	1.5 square miles
Design Storm	15" in 6 hours
Total Precipitation Loss	1.5"
Net Runoff	13.5"
Design Peak Flow	3,420 cfs.
Drawdown Time	4.6 days
Maximum Discharge	2,050 cfs.
Emergency Spillway Construction	Earth Channel
Emergency Spillway Discharge	1,980 cfs.
Emergency Spillway Width	150' (bottom)
Dc at Control Section	1.54'
Vc at Control Section	7.0 fps
Max V in Emergency Spillway	8.2 fps
Freeboard	1.75'

2.2 CONSTRUCTION DATA:

An application For Construction Permit For Dam dated May 15, 1959 was submitted to the State. The Construction Permit was approved on May 22, 1959 by the Connecticut Water Resources Commission. Construction was completed in 1960. A final inspection was held on October 20, 1961 by the Consultant to Water Resources Commission. A Certificate of Approval was issued November 9, 1961.

2.3 OPERATION DATA:

Since this is basically a dry pool flood control dam with no recording instrumentation, there are no operation records available.

2.4 EVALUATION OF DATA:

- a. Availability. The Connecticut Department of Environmental Protection made their files available with limited design and construction information. Also, the Work Plan and Design Report was examined at the State Office of the Soil Conservation Service. Actual computations have been stored in the National Archives of the Soil Conservation Service and are not easily available.
- b. Adequacy. The lack of in-depth engineering data did not allow for a definitive review. Therefore, the adequacy of this dam could not be assessed from the standpoint of reviewing design and construction data, but is based primarily on visual inspection with an empty pool, limited past performance and sound engineering judgment.
- c. Validity. The visual inspection indicated that the dam was constructed substantially as shown on the "As-Built" drawings.

SECTION 3 - VISUAL INSPECTION

3.1 FINDINGS:

- a. General. Based on the visual inspection and a review of the design criteria and construction plans, Pomeroy Dam and its appurtenances are judged to be in good condition.

The dam consists of an earth embankment with underlying soils consisting of Gloucester and Charlton soils. The dam was constructed in conjunction with five other dams in the area for the purpose of flood control in the Borough of Stafford Springs and is a dry dam.

b. Dam.

1. Upstream Face - The upstream face is grass covered with a very dense mat on most of the surface. There are no trees growing on this slope which is shown in Photo No. C-2. Also, there are no paths on the slopes or sloughing and erosion.
2. Crest - The crest is grass covered (sparse in some areas) and can be seen in Photos No. C-2 and C-5. It is relatively level with vehicle tracks, but no significant rutting. There does not appear to be a problem with the grass cover.

3. Downstream Face - The downstream face is grass covered with a very dense mat and is shown in Photo No. C-5. Trespassing on the slopes is insignificant, and there is one small cedar tree as shown in Photo C-5.

Foundation drains appear to be functioning with minor flow estimated to be about 4.5 gallons per minute of clear water at the time of inspection. An outlet to a foundation drain is shown in Photo No. C-8. There are no signs of sloughing or seepage.

c. Appurtenant Structures.

1. Principal Spillway - The inlet to the principal spillway is shown in Photo No. C-4. Although the plans show an 18-inch slide gate at invert of the approach channel, only the frame is presently attached as shown in Photo No. C-4. The concrete and appurtenances appear in good condition.

There is a 24 inch concrete water pipe from the riser through the embankment to the outlet. The portion of the pipe that is visible is in good condition and is shown in Photo No. C-6. There is no evidence of channel erosion at the outlet. The last pipe at the outlet is 16 feet in length and is supported

at mid-point by a reinforced concrete bent 8 feet deep. The remainder of the outlet pipe is supported on a reinforced concrete collar. The plans show five antiseep collars on 22 to 25 foot centers from the upstream face of dike to just beyond the centerline of dam. The collars are 7.5 feet high and 11.3 feet wide. A bent and cradle are not visible, but there are no outward signs of any problems.

2. Emergency Spillway - The emergency spillway is grass lined with a 150 foot bottom width and is shown in Photo No. C-9. There is a good mat of grass and the spillway is in good condition. There is an approximate 8 inch diameter rodent burrow at the outlet end of the emergency spillway.

d. Reservoir Area. Except for the area in the immediate vicinity of the dam, the reservoir area is heavily wooded as shown in the overview photo and Photo No. C-3. The flood area is north of Handel Road and is not near any roads or homes. No detrimental features in the reservoir area were observed.

e. Downstream Channel. The downstream channel for Pomeroy Dam is a natural stream called McIntyres Brook as shown in Photo No. C-7. About 1,000 feet downstream, McIntyres Brook

crosses Handel Road. About 4,500 feet downstream, the brook crosses Connecticut Route 30 and joins Crystal Lake Brook.

3.2 EVALUATION:

Based on visual inspection, the overall condition of the dam is good and the maintenance program appears to be good. The following items require attention but prompt action is not required and the work can be accomplished during routine maintenance inspections.

- a. Continue the existing routine maintenance program.
- b. Remove single cedar tree from downstream slope.
- c. Monitor rodent activity to avoid burrows in the embankment and eliminate the existing burrow in the emergency spillway.
- d. Since the reservoir was dry during the inspection, possible areas of seepage could not be observed. The downstream face should be inspected during periods when significant levels of water are in the reservoir.
- e. Monitor seepage from foundation drains during future technical inspections.
- f. Institute a biennial inspection of the dam by technical personnel.

SECTION 4

OPERATIONAL AND MAINTENANCE PROCEDURES

4.1 OPERATIONAL PROCEDURES:

- a. General. This dam is a flood control structure and the operation is automatic in that the principal spillway limits discharges and causes excess flow to be stored in the reservoir; when the inflow falls below the rate of discharge, the water level drops and eventually empties through the principal spillway.
- b. Description of Any Warning System in Effect. There is no formal downstream warning system in case of emergency at the dam.

4.2 MAINTENANCE PROCEDURES:

- a. General. This dam is checked for maintenance requirements two times per year by District Maintenance personnel and any required work is done at that time. Maintenance consists mainly of cutting grass and tree growth. Maintenance appears to be good at this dam.
- b. Operating Facilities. There are no operating facilities at this dam.

4.3 EVALUATION:

The existing maintenace schedule should be continued. A downstream warning system should be developed and put into effect in case of emergency at the dam.

SECTION 5

EVALUATION OF HYDRAULIC/HYDROLOGIC FEATURES

5.1 GENERAL:

Pomeroy Dam consists of a 535 foot long earth dam with a maximum height of 37 feet. There is a principal spillway consisting of a reinforced concrete riser with a 24 inch concrete pipe outfall. The emergency spillway is a 150 foot wide grass spillway with a maximum surcharge of 5.1 feet before overtopping the dam.

Flow in McIntyres Brook is impounded by this structure. The watershed is rolling and wooded. Except for swampy areas along McIntyres Brook, there are no significant storage areas in the watershed.

5.2 DESIGN DATA:

Pomeroy Dam was designed by the Soil Conservation Service. The weighted curve number for the watershed was computed to be 67.94 for AMC II and 85.5 for AMC III with a time of concentration of 3.55 hours.

The design flood used a rainfall of 15 inches in 6 hours with AMC III. A total precipitation loss of 1.5 inches resulted in a net runoff of 13.5 inches. Drawdown time was calculated to be 4.6 days.

The critical depth at the control section in the emergency spillway was calculated to be 1.54 feet and the maximum velocity to be 8.2 feet per second.

5.3 EXPERIENCE DATA:

No historical data for recorded discharges or water surface elevations are available for this dam or watershed.

5.4 TEST FLOOD ANALYSIS:

Recommended guidelines for the safety inspection of dams by the Corps of Engineers were used for the selection of the "Test Flood". Pomeroy Dam is classified as SMALL in size with a HIGH hazard potential. Guidelines for these classifications indicate that an event equal in magnitude to the Probable Maximum Flood to $\frac{1}{2}$ the Probable Maximum Flood should be used. The probable maximum rainfall for this area is 24 inches in 6 hours for 10 square miles. Using Corps of Engineers methods, this results in a PMF of 3450 cfs and a $\frac{1}{2}$ PMF of 1725 cfs. When designing this facility, the Soil Conservation Service (SCS) used a 6 hour rainfall of 15 inches and a runoff of 13.5 inches.

The design flood was calculated by SCS to be 3,420 cfs. Peak outflow for the design flood inflow was computed to be 2,051 cfs. by the Soil Conservation Service. This outflow results in a water surface elevation of 679.45 which is 1.75 feet below the crest of dam with a maximum depth of flow in the emergency spillway of 3.35 feet. This design flood was used as the test flood for Pomeroy Dam.

The capacity of spillways at the top of dam elevation is 4,393 cfs. which is 128 percent of the calculated test flood discharge.

5.5 DAM FAILURE ANALYSIS:

Applying the calculated dam failure discharge of 36,300 cfs. when the impounded water level in the reservoir is at elevation 679.5 (Test Flood Surge) will produce a flood depth of 22 feet and an approximate water surface elevation of 665.7 just downstream of the dam.

At the peak discharge rate of 3,420 cfs. for the test flood, the approximate water surface elevation would be 654 just downstream of the dam. The depths of flow would range from 22 feet just downstream of the dam to 6.4 feet approximately 4,500 feet downstream at Route 30.

This dam is classified as having a HIGH hazard potential because it is located in a rural area about 4,500 feet upstream of Connecticut Route 30 and a failure discharge could cause damage due to high velocity, impact from debris and flooding to five houses, Handel Road and Route 30. The assumed failure could cause the loss of more than a few lives in four of the houses.

At Station 40+00, a house on the west side of Connecticut Route 30 would have a water depth of slightly more than one foot above first floor level before failure and more than four feet after the assumed failure. Three

houses east of Route 30 would have no water above first floor level before failure and three feet after assumed failure. A fifth house would have damage due to flooding in the basement but there would be no flooding above first floor level. The calculated water level in this area pre-failure is elevation 622.3 and post-failure is 625.4.

Computations of water surface elevation and a map showing the limits of the impact area are included in Appendix D.

SECTION 6 - STRUCTURAL STABILITY

6.1 VISUAL OBSERVATION:

The field inspection did not reveal any stability problems.

6.2 DESIGN AND CONSTRUCTION DATA:

A review of the "As-Built" drawings did not disclose any potential stability problems. It was assumed that the dam was constructed as shown on the drawings. The field inspection did not indicate any substantial variance from the plans.

6.3 POST CONSTRUCTION CHANGES:

There are no post construction changes apparent.

6.4 SEISMIC STABILITY:

Pomeroy Dam is located in Seismic Zone 1 and in accordance with the Corps of Engineers' guidelines does not warrant further seismic analysis at this time.

SECTION 7

ASSESSMENT, RECOMMENDATIONS AND REMEDIAL MEASURES

7.1 DAM ASSESSMENT:

- a. Condition. Based on the visual inspection, Pomeroy Dam appears to be in good condition.
- b. Adequacy of Information. "As-Built" drawings were made available for this report. The Work Plan and Design Report were available for examination at the Soil Conservation Service Office. Actual design calculations were not available, but were reviewed by engineers for the Connecticut Water Resources Commission before construction was started.
- c. Urgency. The recommendations presented in Sections 7.2 and 7.3 should be carried out within two years of receipt of this report by the Owner.

7.2 RECOMMENDATIONS:

There are no recommendations requiring additional engineering investigation or major modifications to the dam.

7.3 REMEDIAL MEASURES:

- a. Operation and Maintenance Procedures. The following remedial measures should be implemented:

1. Continue existing routine maintenance program.
2. Remove single cedar tree from downstream slope, backfill the excavation with suitable material and seed the area.
3. Monitor rodent activity to avoid burrows in embankment. Eliminate existing burrow in emergency spillway.
4. Maintain a record of maximum water levels during flood events for future evaluation studies.
5. During flood events, check for evidence of seepage.
6. Monitor seepage from foundation drains during future technical inspections.
7. Institute a biennial inspection of the dam by technical personnel.

7.4 ALTERNATIVES:

There are no alternatives to the recommendations and remedial measures contained in Sections 7.2 and 7.3.

APPENDIX A

INSPECTION CHECK LIST

VISUAL INSPECTION CHECK LIST
PARTY ORGANIZATION

PROJECT Pomeroy Dam DATE 2-17-81 and 2-19-81

TIME 9:30 a.m.

WEATHER Clear 45°

W.S.Elev. 646.0 U.S. 645.0 DN.S.

PARTY:

- | | |
|--|-----------|
| 1. <u>G. Mirtl, Hydrology & Hydraulics</u> | 6. _____ |
| 2. <u>C. Welti, Soils & Geology</u> | 7. _____ |
| 3. <u>E. Lang, Structural & Mechanical</u> | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

PROJECT FEATURE

INSPECTED BY

REMARKS

- | | |
|---|--|
| 1. <u>All features inspected by members of party.</u> | |
| 2. _____ | |
| 3. _____ | |
| 4. _____ | |
| 5. _____ | |
| 6. _____ | |
| 7. _____ | |
| 8. _____ | |
| 9. _____ | |
| 10. _____ | |

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>DIKE EMBANKMENT</u>	
Crest Elevation	681.2
Current Pool Elevation	None
Maximum Impoundment to Date	Unknown
Surface Cracks	None visible
Pavement Condition	No pavement, grass covered crest
Movement or Settlement of Crest	None apparent
Lateral Movement	None apparent
Vertical Alignment	Good
Horizontal Alignment	Good
Condition at Abutment and at Concrete Structures	Good
Indications of Movement of Structural Items on Slopes	Not applicable (N/A)
A-2	

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>DIKE EMBANKMENT (cont)</u>	
Trespassing on Slopes	None
Sloughing or Erosion of Slopes or Abutments	None
Rock Slope Protection - Riprap Failures	N/A
Unusual Movement or Cracking at or near Toes	None
Unusual Embankment or Downstream Seepage	None
Piping or Boils	None
Foundation Drainage Features	Appear to be functioning. Minor flow.
Toe Drains	Good
Instrumentation System	N/A
Vegetation	Very good grass cover. One small cedar.

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - INTAKE CHANNEL AND INTAKE STRUCTURE</u>	
a. Approach Channel	
Slope Conditions	Good
Bottom Conditions	Good
Rock Slides or Falls	N/A
Log Boom	N/A
Debris	None
Condition of Concrete Lining	N/A
Drains or Weep Holes	N/A
b. Intake Structure	
Condition of Concrete	Good
Stop Logs and Slots	Slots good, slide gate and controls missing
A-4	

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - TRANSITION AND CONDUIT</u>	Concrete pipe principal spillway outlet
General Condition of Concrete	Good
Rust or Staining on Concrete	None
Spalling	None
Erosion or Cavitation	None
Cracking	None
Alignment of Monoliths	N/A
Alignment of Joints	N/A
Numbering of Monoliths	N/A

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - CONTROL TOWER</u>	N/A
a. Concrete and Structural	
General Condition	
Condition of Joints	
Spalling	
Visible Reinforcing	
Rusting or Staining of Concrete	
Any Seepage or Efflorescence	
Joint Alignment	
Unusual Seepage or Leaks in Gate Chamber	
Cracks	
Rusting or Corrosion of Steel	
A-6	

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - CONTROL TOWER</u> (cont)	N/A
b. Mechanical and Electrical	
Air Vents	
Float Wells	
Crane Hoist	
Elevator	
Hydraulic System	
Service Gates	
Emergency Gates	
Lightning Protection System	
Emergency Power System	
Wiring and Lighting System	
A-7	

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - OUTLET STRUCTURE AND OUTLET CHANNEL</u>	
General Condition of Concrete	N/A
Rust or Staining	N/A
Spalling	N/A
Erosion or Cavitation	None
Visible Reinforcing	None
Any Seepage or Efflorescence	None
Condition at Joints	N/A
Drain Holes	N/A
Channel	Good
Loose Rock or Trees Overhanging Channel	None
Condition of Discharge Channel	Good

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS</u>	Emergency Spillway
a. Approach Channel	
General Condition	Good
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	None
Floor of Approach Channel	Good
b. Weir and Training Walls	N/A
General Condition of Concrete	
Rust or Staining	
Spalling	
Any Visible Reinforcing	
Any Seepage or Efflorescence	

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS</u>	
b. Weir and Training Walls	N/A
Drain Holes	
c. Discharge Channel	
General Condition	Good
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	None
Floor of Channel	Good
Other Obstructions	No obstructions - Rodent burrows at outlet end.
A-10	

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SERVICE BRIDGE</u>	N/A
a. Super Structure	
Bearings	
Anchor Bolts	
Bridge Seat	
Longitudinal Members	
Under Side of Deck	
Secondary Bracing	
Deck	
Drainage System	
Railings	
Expansion Joints	
Paint	
A-11	

PERIODIC INSPECTION CHECK LIST

PROJECT Pomeroy Dam DATE 2-17-81

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SERVICE BRIDGE</u> (cont)	N/A
b. Abutment & Piers	
General Condition of Concrete	
Alignment of Abutment	
Approach to Bridge	
Condition of Seat & Backwall	
A-12	

APPENDIX B

ENGINEERING DATA

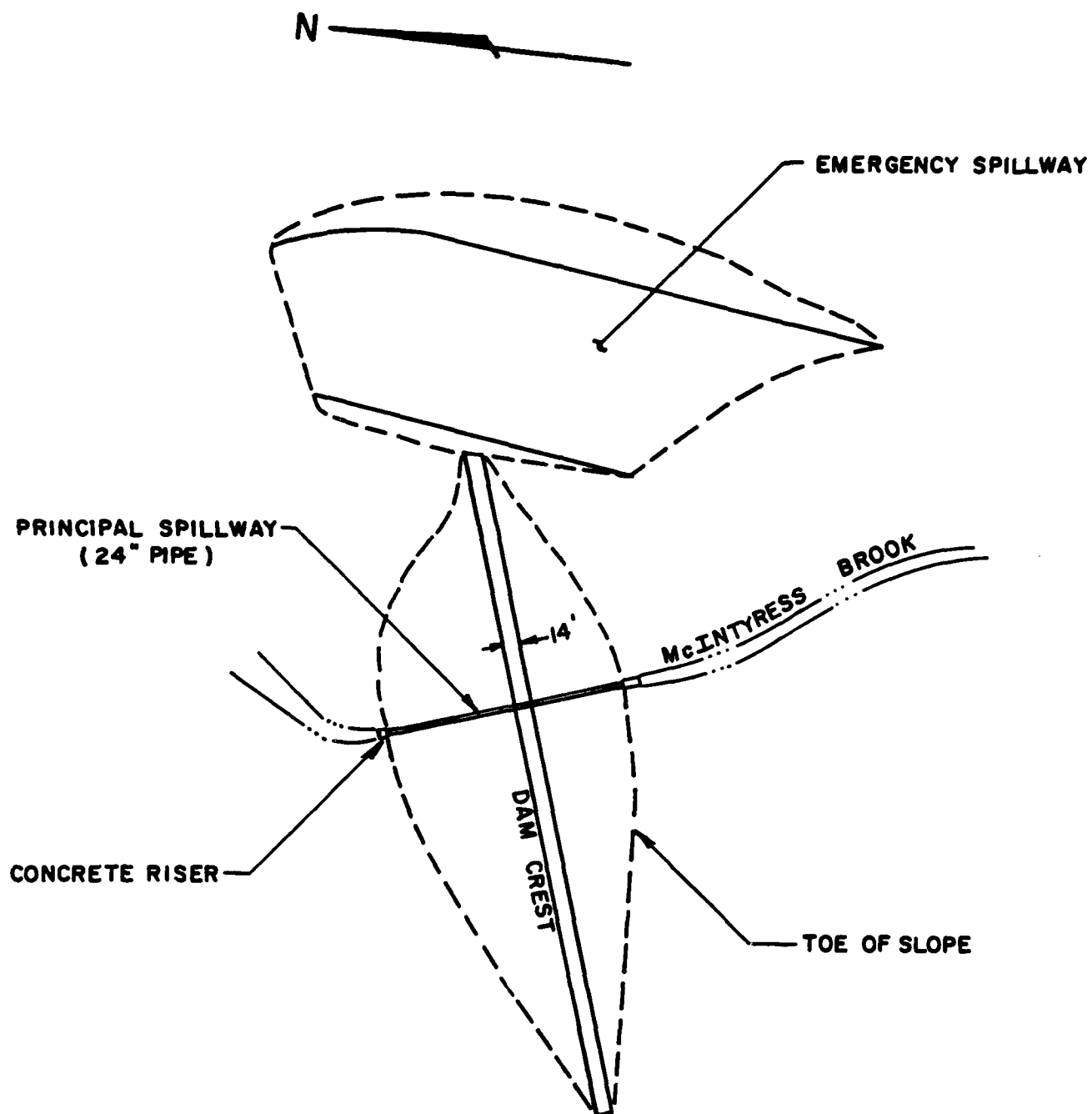
ENGINEERING DATA

1. As Built drawings and maintenance information are on file at:

State of Connecticut
Department of Environmental Protection
State Office Building
Hartford, CT 06114

2. Work Plan, Design Report and access to original calculations are available at:

U.S. Department of Agriculture
Soil Conservation Service
Mansfield Professional Park
Storrs, CT 06268

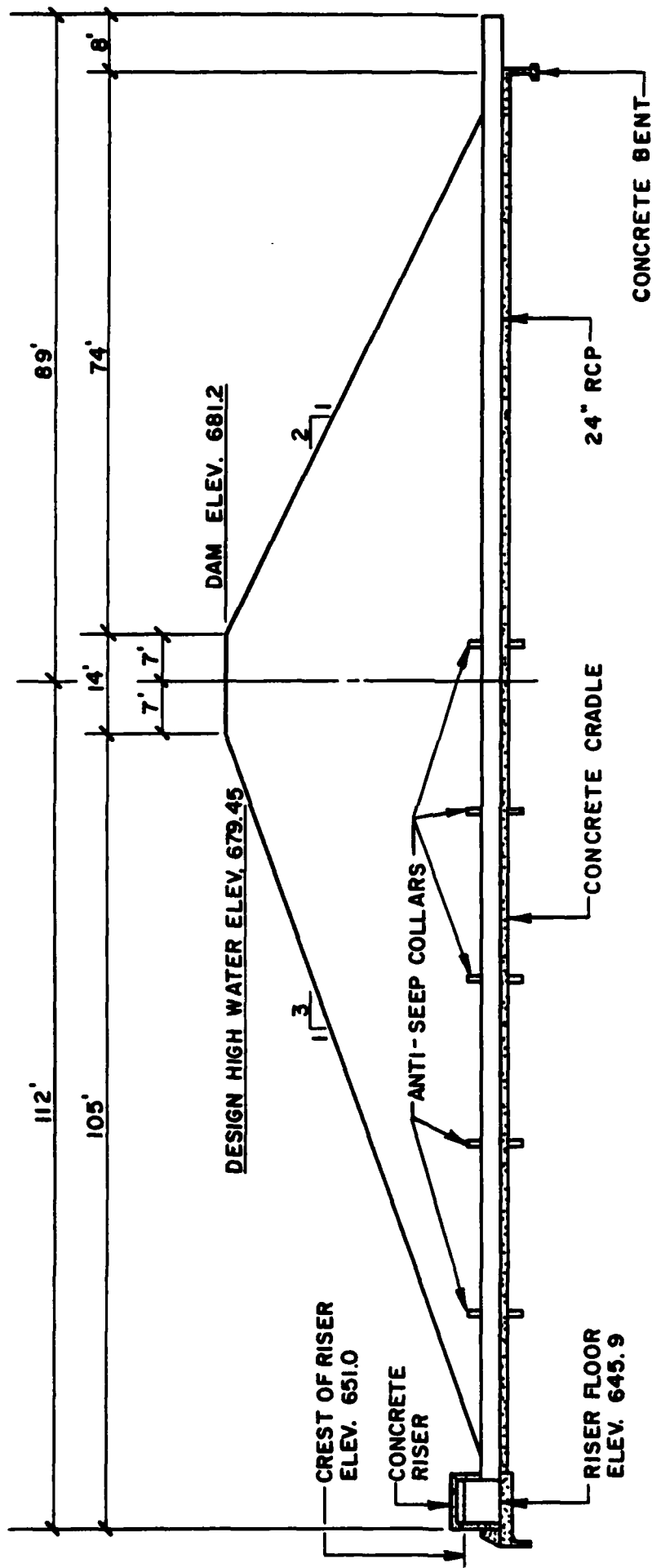


GENERAL PLAN

SCALE: 1" = 120' ±

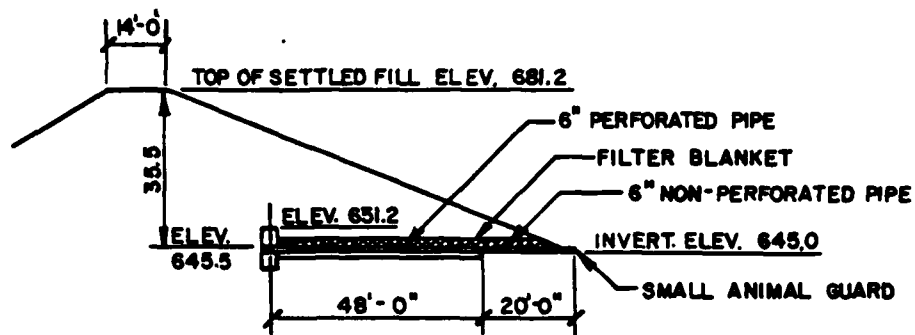
POMEROY DAM

PLATE B-1

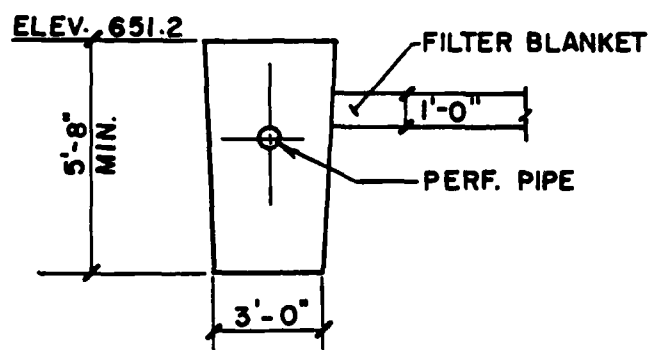


PROFILE ALONG C OF PRINCIPAL SPILLWAY

SCALE: 1"=20'±

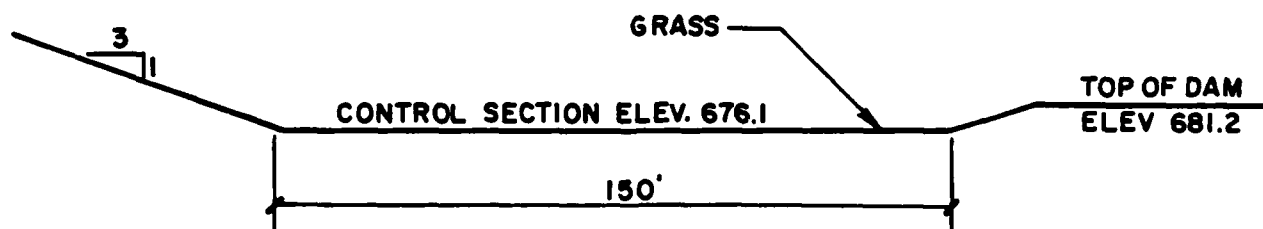


SECTION THRU \varnothing OUTLET PIPE



SEEPAGE DRAIN

NOT TO SCALE

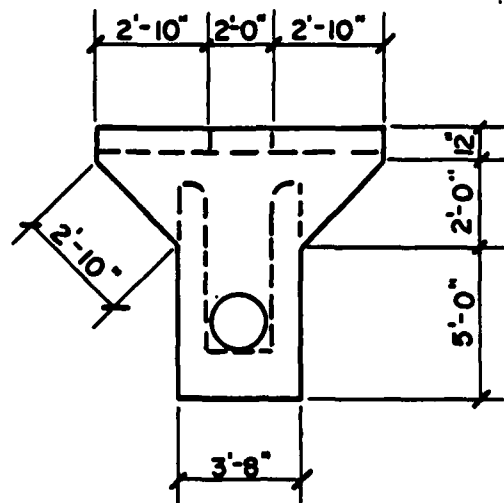


**TYPICAL SECTION
EMERGENCY SPILLWAY**

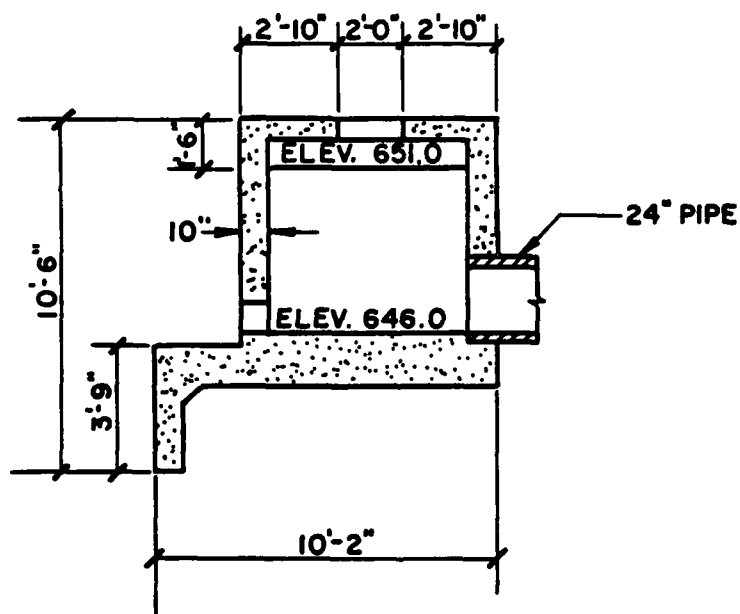
NOT TO SCALE

POMEROY DAM

PLATE B-3



UPSTREAM ELEVATION



SECTION ON C-C

DETAIL - CONCRETE RISER

NOT TO SCALE

POMEROY DAM

PLATE B-4

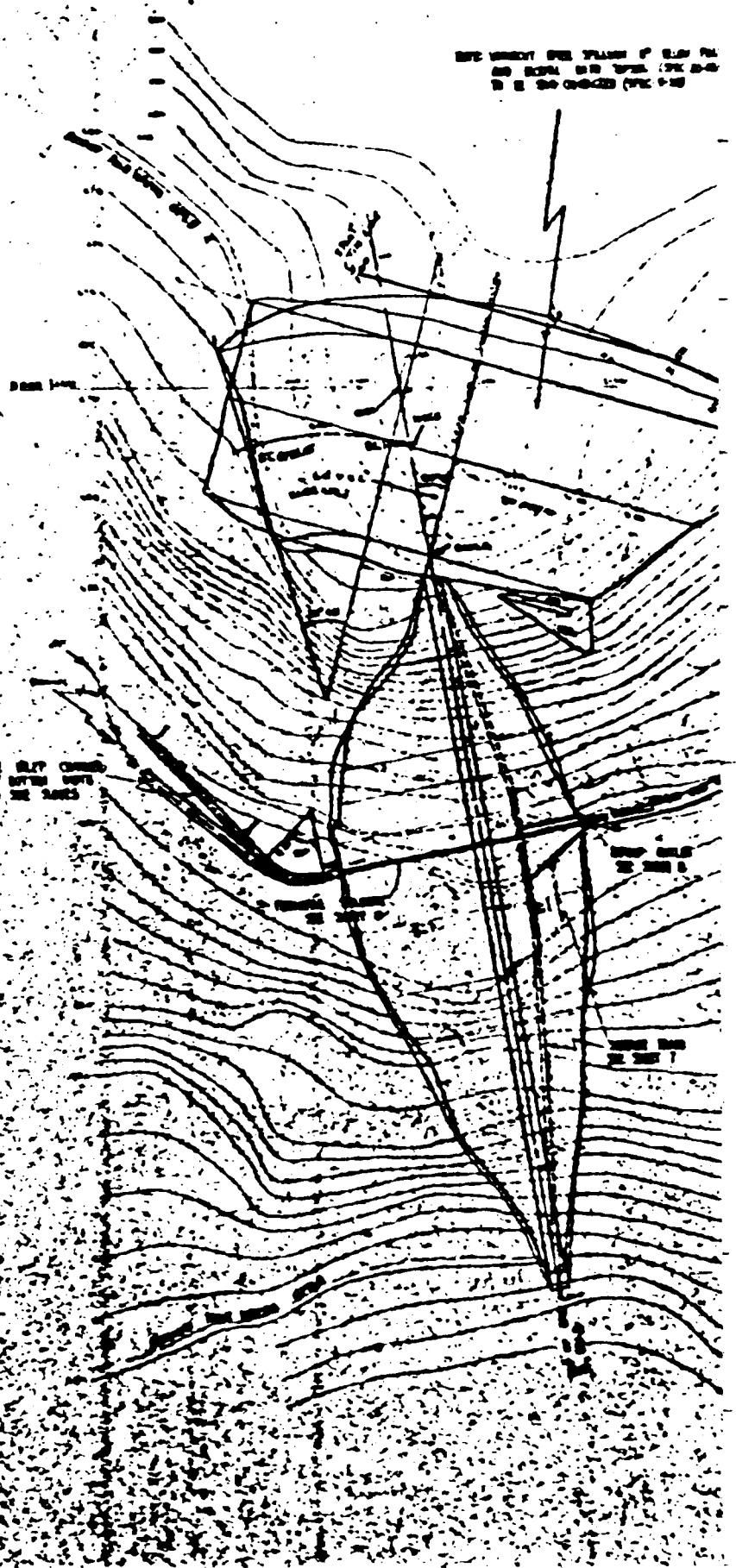
NOTE: VERTICAL SCALE PLANNED BY SLIP PA
AND SCALE IN THE TOP OF THE 20-40
IN IS THE CORRECTED (SPEC 9-10)

DATA

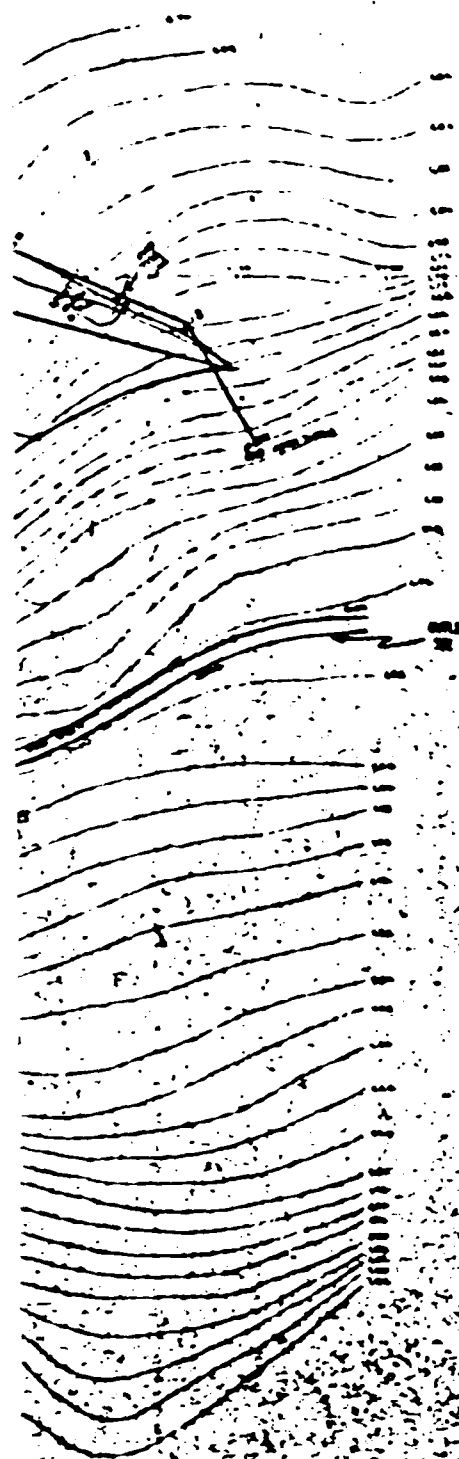
1. 200'
 2. 20' 00"
 3. 114.25
 4. 112.00
 5. 0.00
 6. 0.00
 7. 0.00
 8. 0.00
 9. 0.00
 10. 0.00

Sta	Dist. (miles)	Time
1-10	0.00-0.01	0.1
1-20	0.01-0.02	0.2
1-30	0.02-0.03	0.3
0-10	0.00-0.01	0.1
0-20	0.01-0.02	0.2
0-30	0.02-0.03	0.3

1. 200'
 2. 20' 00"
 3. 114.25
 4. 112.00
 5. 0.00
 6. 0.00
 7. 0.00
 8. 0.00
 9. 0.00
 10. 0.00



4-10-58
1-10-58
1-10-58



APPROXIMATE EXCAVATION QUANTITIES

	EXC.	CUT
GRADIENT FILLING	600 CUB YD	200 CUB YD
CHANNEL EX. INLET AND OUTLET		300
STRUCTURAL EX.	250	1000
BRIDGE EX.		20,000

NOTE: THE ABOVE FIGURES ARE APPROXIMATE QUANTITIES BASED ON THE INFORMATION OF THE OFFICE

WORKING ON PLANS EXCEPTED FROM BIDDING AND CONTRACTING AND VARIOUS MATERIALS

GENERAL NOTES

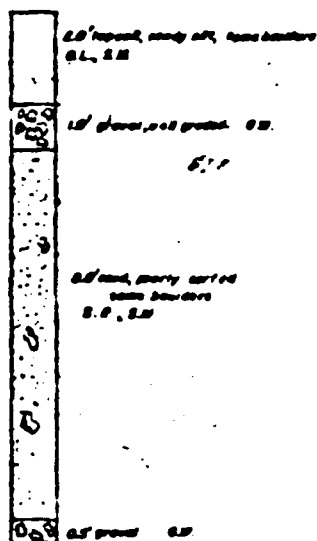
1. SEE SHEET B-1 FOR THE AREA ADJACENT TO THE EXISTING CHANNEL.
2. EXISTING 11.0% GRADE SHALL BE MAINTAINED EXCEPT WHERE SHOWN OTHERWISE.
3. EXISTING 11.0% GRADE SHALL BE MAINTAINED EXCEPT WHERE SHOWN OTHERWISE.
4. EXISTING 11.0% GRADE SHALL BE MAINTAINED EXCEPT WHERE SHOWN OTHERWISE.

DATE: 1-10-58	
DRAWN BY: [Signature]	
CHECKED BY: [Signature]	
APPROVED BY: [Signature]	
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
PROJECT NO.	1-10-58
SECTION NO.	1-10-58
DATE	1-10-58
BY	1-10-58
CHECKED BY	1-10-58
APPROVED BY	1-10-58

1-10-58	1-10-58	1-10-58
1-10-58	1-10-58	1-10-58
1-10-58	1-10-58	1-10-58

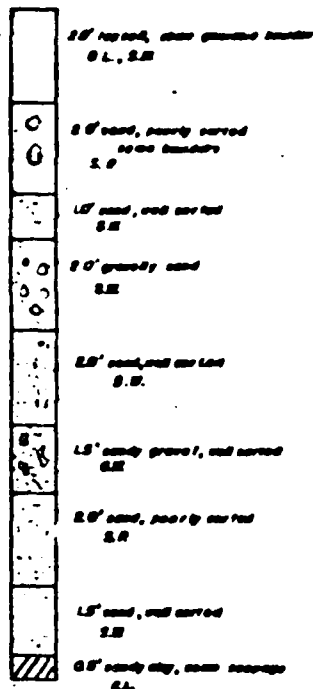
TEST PIT 1

SURFACE ELEV. 6810



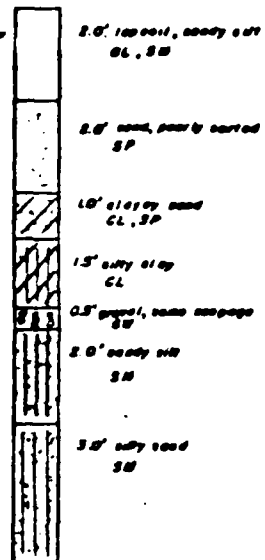
TEST PIT 2

SURFACE ELEV. 6700



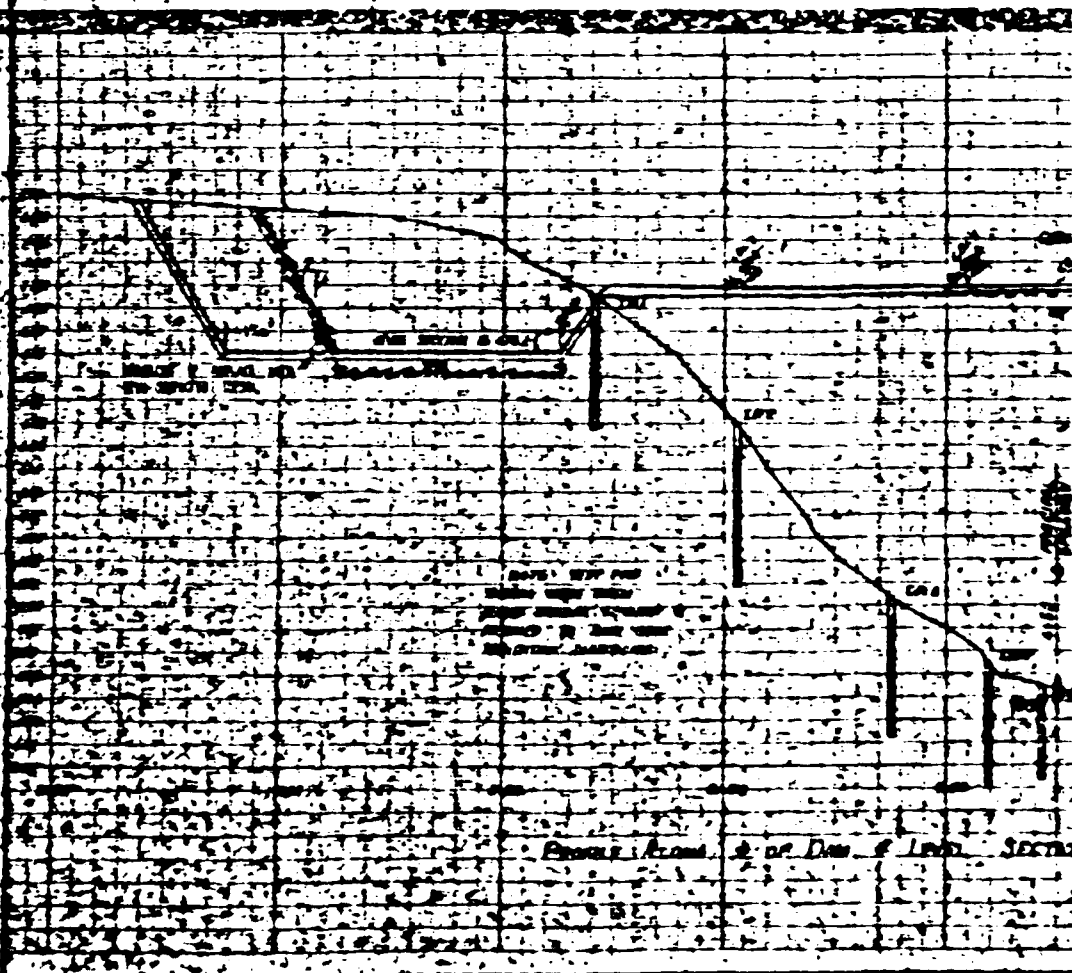
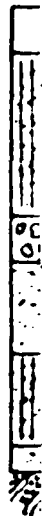
TEST PIT 3

SURFACE ELEV. 6547



TEST 4

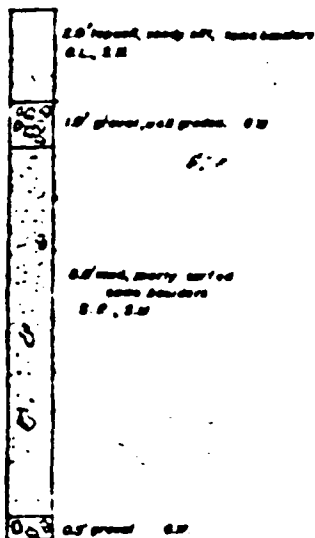
5



①

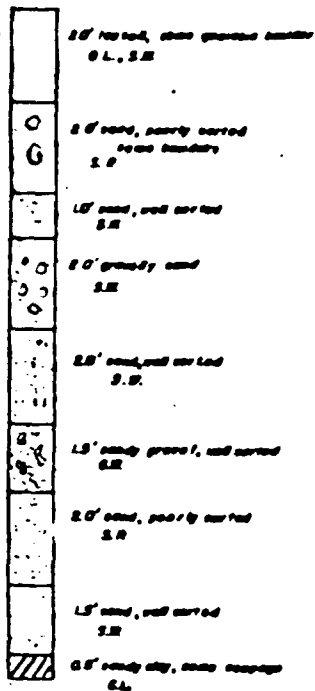
TEST PIT 1

SURFACE ELEV 6810



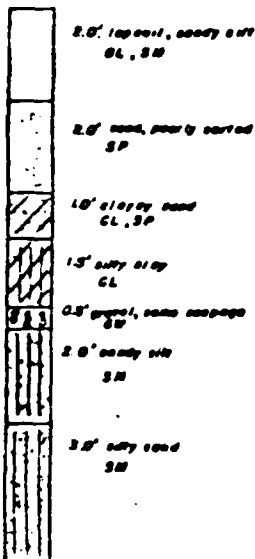
TEST PIT 2

SURFACE ELEV 6700



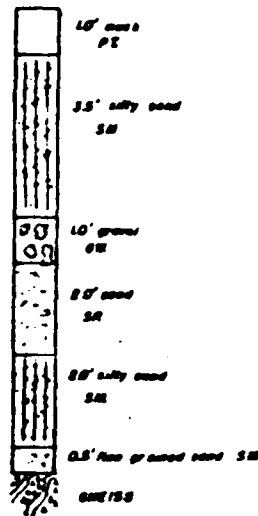
TEST PIT 3

SURFACE ELEV 6547



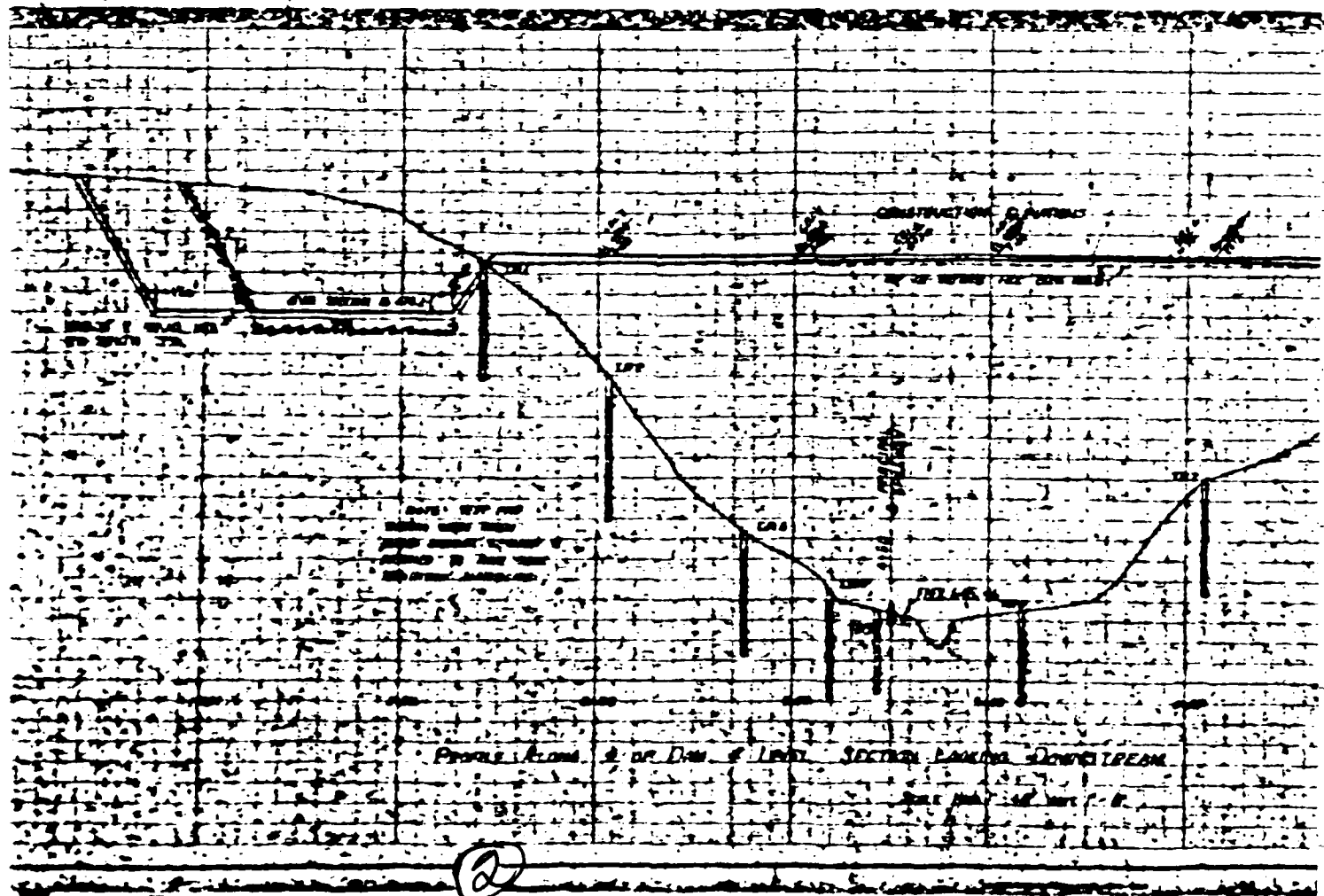
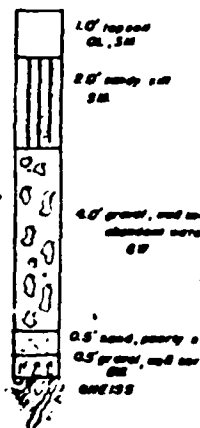
TEST PIT 4

SURFACE ELEV 6490



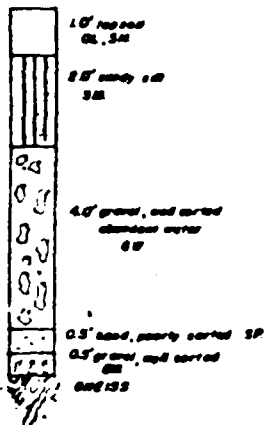
TEST PIT 5

SURFACE ELEV 64



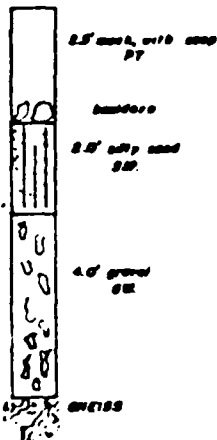
TEST PIT 5

SURFACE ELEV 6470



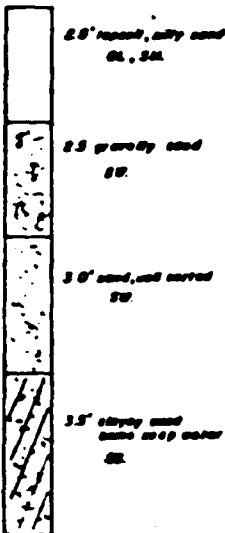
TEST PIT 6

SURFACE ELEV 6470



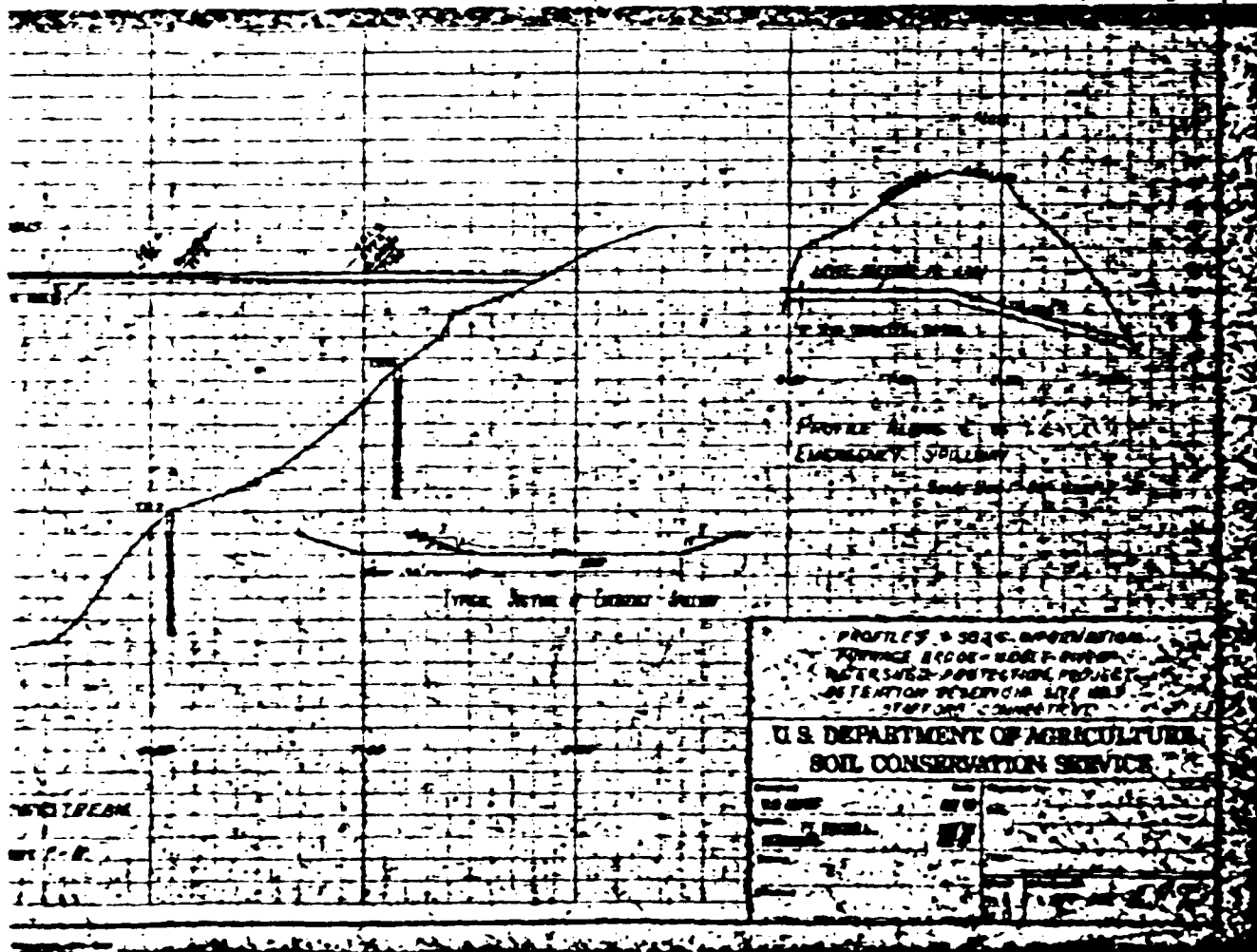
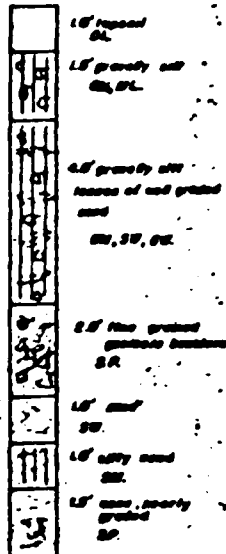
TEST PIT 7

SURFACE ELEV 6600



TEST PIT 8

SURFACE ELEV 6730



REINFORCED CONCRETE PIPE
CLASS B CONCRETE PIPE
SEE SHEET 1

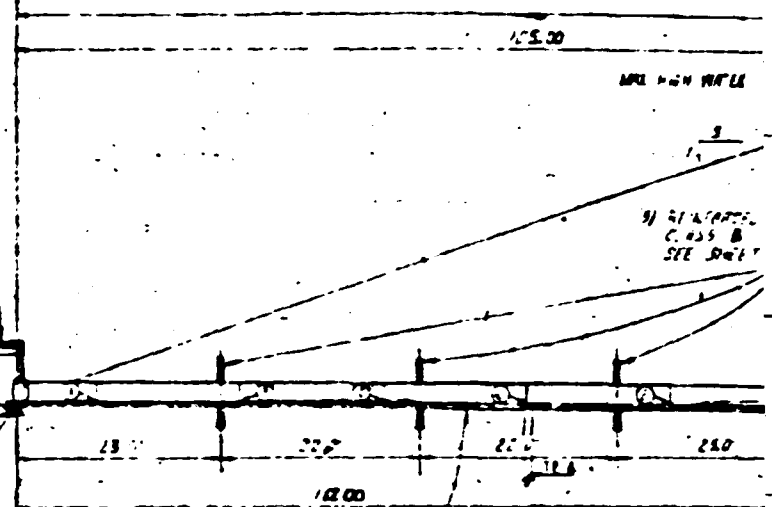
PIPE OF 42 IN. DIA.

DETAIL OF JOINT
TEMPERATURE

FLANGE OF 4 IN. DIA. RING

TO SOIL

WALL PIECE SEE DETAIL
SHEET 9



REINFORCED CONCRETE PIPE
CLASS B CONCRETE PIPE
SEE SHEET 1

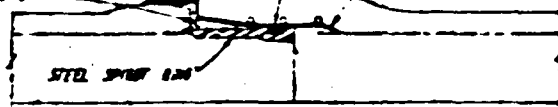
SEALED WITH COLD-APPLIED BITUMINOUS
UNION-PAILED SEWER

PIPE WITH BUT JOINT

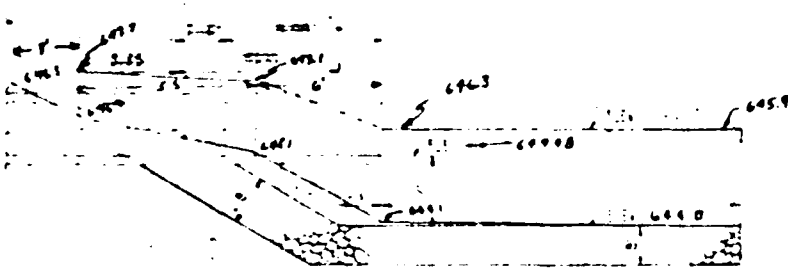
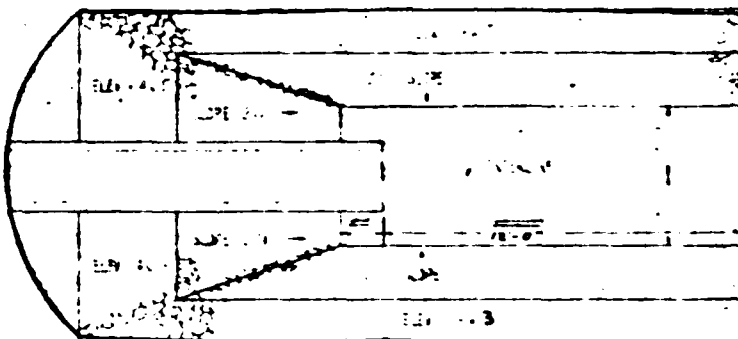
RUBBER GASKET

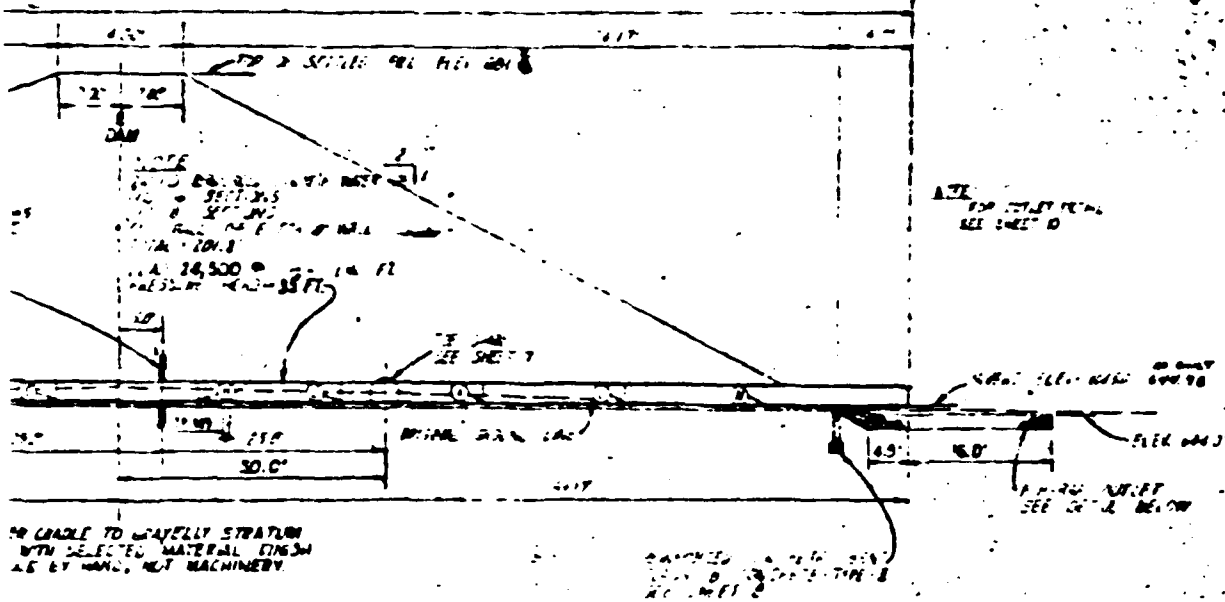
STEEL BELL RING

STEEL SPIRIT RING

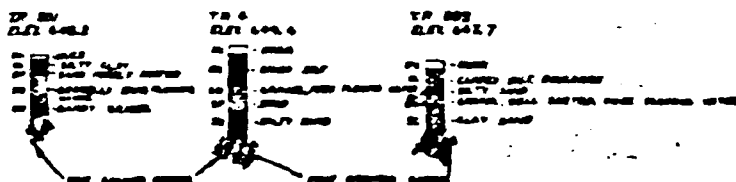


DETAIL OF REINFORCED CONCRETE WATER PIPE WITH FLEXIBLE JOINT
NOT TO SCALE





C OF PRINCIPAL SPILLWAY (90° WITH R OF DAM STA 4+50)
SCALE: 1"=10'



TEST PITS ALONG C OF PRINCIPAL SPILLWAY
ELEV. 100.0' TO 50.0'

	LENGTH OF CAMBER END OF PIPE IN FEET	ELEVATION OF INVERT OF PIPE IN FEET (CAMBER)	AS BUILT
B-100	20.00	646.00	646.00
A	10.00	645.99	645.99
B	10.00	645.99	645.99
C	10.00	645.99	645.99
D	10.00	645.99	645.99
E	10.00	645.99	645.99
F	10.00	645.99	645.99
G	10.00	645.99	645.99
H	10.00	645.99	645.99
I	10.00	645.99	645.99
J	10.00	645.99	645.99
K	10.00	645.99	645.99
L	10.00	645.99	645.99
M	10.00	645.99	645.99

NOTE: PIPE DIMENSIONS OF LENGTH
7' ARE BASED ON NOMINAL
LENGTH AND NO 1" BOLT CIRC
MAXIMUM CAMBER 0.50 AT POINT G

PROFILE ALONG C OF PRINCIPAL SPILLWAY
ELEV. 100.0' TO 50.0'

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PROJECT NO. 3-70
DATE 8-10
DRAWN BY
CHECKED BY
APPROVED BY
CN-402 P

No. _____

WATER RESOURCES COMMISSION
SUPERVISION OF DAMS
INVENTORY DATA

CT 479

Inventoried
By _____

Date _____

Name of Dam or Pond SCS #3, Pomeroy DAM

Code No. W24.0 MR2.4 E31.6 CL1.6 PM1.0

Nearest Street Location HANDEL ROAD

Town Stafford

U.S.G.S. Quad. ELLINGTON CT

LAT. 41° 57.6'

Name of Stream McINTYRES BROOK

LONG. 76° 22.8'

Owner DEP

Address MILFORD CT

Pond Used For FLOOD CONTROL

DA 947 AC

DA 1455M

Dimensions of Pond: Width _____ Length _____ Area 54

Total Length of Dam 285.0' 500' Length of Spillway 1000' - 150'

Location of Spillway PRINCIPAL - CENTER OF DAM; 500' E - 150' E

Height of Pond Above Stream Bed 35' 34.2'

Height of Embankment Above Spillway 4' 1.8'

Type of Spillway Construction PRINCIPAL SPILL 24" CONC PIPE 500' E

Type of Dike Construction EARTH FILL

Downstream Conditions LAKE VIEW TERRACE

Summary of File Data _____

Remarks FLOODWATER DETENTION CAPACITY 460

TOTAL RESERVOIR CAPACITY 685

STRUCT HEIGHT 36.5'

Class 3 accord
M22

JOHN J. MOZZOCHI AND ASSOCIATES
CONSULTING ENGINEERS

JOHN J. MOZZOCHI

ASSOCIATES

OWEN J. WHITE
JOHN LUCHS, JR.

May 14, 1959

217 HEBRON AVENUE
GLASTONBURY, CONN.
PHONE MEDFORD 3-9401

William S. Wise - Director
State Water Resources Commission
State Office Building
Hartford 15, Connecticut

Re: Our File 57-73-19
Stafford Springs
Detention Reservoirs
Site No. 3 - Pomeroy

Dear Mr. Wise:

As instructed by your letter of authorization dated August 28, 1958, I have been reviewing the work of the Soil Conservation Service in connection with the design of the 5 flood detention structures planned for Stafford Springs.

Several conferences were held with members of your staff and S.C.S. personnel to establish criteria for evaluating the adequacy of the proposed structures. These criteria were summarized in a letter dated April 30, 1959, from Mr. Charles J. Pelletier, Hydraulic Engineer.

A summary of the major facts contained in the design report are as follows:

Drainage area	1.45 square miles
Design storm	15" in 6 hours
Total retention	1.5"
Net Runoff	13.5"
Design Peak	2430 CFS
Per square mile	1680 CFS
Draw down time	4.6 days
Spillway outflow	1640 CFS
Emergency spillway width	150 ft. - 100
Dc at control section	1.54 ft.
Vc at control section	7.0 ft/sec.
Max. velocity in exit channel	7.6 ft/sec.
Max. velocity at exit channel terminus ...	8.2 ft/sec.
Freeboard	2.0 ft.

We have checked all of the computations involved and find that the design of this project meets the requirements of the established criteria.

A comparison of the runoff per square mile was made against 1955 flood experience in small drainage areas, as determined by the U.S. Geological Survey, as follows:

Colebrook Brook, Winsted
Area 2.84 sq. mi. 585 cfs/s.m.

Birdseye Brook, Cornwall
A = 3.88 s.m. 505 cfs/s.m.

East Branch Naugatuck River, Torrington
A = 7.2 s.m. 865 cfs/s.m.

Valley Brook, West Hartland
A = 7.2 s.m. 1150 cfs/s.m.

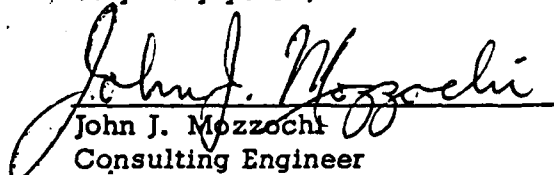
The amount of 1680 cfs/s.m. provided for the 1.45 s.m. area in this design is deemed to be quite satisfactory when compared to the above.

Transmitted herewith are three (3) copies each of:

- (a) Design Report
- (b) Construction Specifications
- (c) Plans

I have reviewed these documents and find that the information therein meets all of the conditions which we have specified and I recommend that a construction permit be issued for this project. The usual conditions of notification for periodic inspection will suffice.

Very truly yours,


John J. Mozzochi
Consulting Engineer

JJM:hk
encls.

FORM D-4

STATE OF CONNECTICUT
WATER RESOURCES COMMISSION
Room 317, State Office Building
Hartford, Connecticut

APPLICATION FOR CONSTRUCTION PERMIT FOR DAM

Owner State of Connecticut

Date May 15, 1959

P. O. Address Conn. Dept. of Agriculture
State Office Bldg., Hartford, Connecticut

Tel. No. Ja. 7-6341 Ext. 435

Location of Structure:

Town Stafford

Shown on USGS Quadrangle Stafford Springs, Conn.
Ellington, Connecticut

Name of Stream Pomeroy Brook - 46° 3'

at _____ inches south of Lat. _____
north
and _____ inches east of Long. _____
west

Directions for reaching site from nearest village or route intersection:
(see sketch on reverse side)

Handel Road - Stafford

This is an application for: ☒ (New Construction) ☐ (Alteration) ☐ (Repair) ☐ (Removal)
(check one or more of above)

This pond is to be used for: Flood Control

Dimensions of Pond: width _____ length _____ area _____

Maximum depth of water immediately above dam: _____

Total length of dam: _____

Length of spillway: _____

Height of abutments above spillway: _____

Type of spillway construction: Concrete

Type of dike construction: _____

Spillway section will be set on: ☒ (Bedrock) ☐ (Gravel) ☐ (Clay) ☐ (Till)
(check one of above)

Remarks: _____

Signed: Joseph N. Gill Commissioner, Dept. of
~~(Commerce)~~ Agriculture

Note: Show details of construction on reverse side, Name of Engineer, if any Soil Conservation Service U.S. Dept. of
Agriculture

STATE OF CONNECTICUT
WATER RESOURCES COMMISSION
Room 317, State Office Building
Hartford, Connecticut

Date: May 22, 1959

TO: State of Connecticut

Department of Agriculture

State Office Building

Hartford, Connecticut

ATTENTION: MR. JOSEPH M. GILL, COMMISSIONER

Gentlemen:

Your application for Construction Permit dated May 15, 1959,
for the construction of an earth dam on Pomeroy Brook in the Town of Stafford
in accordance with plans and specifications marked CU-402 and prepared by the
Soil Conservation Service, U. S. Department of Agriculture,

copy of which is attached hereto, has been considered and the construction
described therein is hereby approved only under the following conditions:

1. The Commission shall be notified

- A) When construction is started
- B) When foundation is excavated
- C) When the dam is completed and before water is impounded
- D) When project is completed and ready for final inspection

2. _____

3. _____

4. _____

5. _____

This permit, with the attached application form and ~~other documents~~, must
be kept at the site of the work and made available to the Commission at any time
during the construction. ~~This permit covers the construction as described in~~
the ~~attached~~ documents. ~~If any changes are contemplated the Commission must be~~
notified and supplementary approval obtained.

If the construction authorized by this construction permit is not started within TWO YEARS of the date of this permit and completed within FOUR YEARS of the same date this permit must be renewed.

Your attention is directed to Section 25-115 of the 1958 Revision to the General Statutes - Liability of owner or operator. Nothing in this chapter, and no order, approval or advice of the commission or a member thereof, shall relieve any owner or operator of such a structure from his legal duties, obligations and liabilities resulting from such ownership or operation. No action for damages sustained through the partial or total failure of any structure or its maintenance shall be brought or maintained against the state, a member of the commission or the commission, or its employees or agents, by reason of supervision of such structure exercised by the commission under this chapter.

The Commission cannot convey or waive any property right in any lands of the state, nor is this permit to be construed as giving any property rights in real estate or material or any exclusive privileges, nor does it authorize any injury to private property or the invasion of private rights or any infringement of federal, state or local laws or regulations.

Your attention is also directed to Section 26-134 of the 1958 Revision to the General Statutes - Obstructing streams. No person shall, unless authorized by the director, prevent the passing of fish in any stream or through the outlet or inlet of any pond or stream by means of any rack, screen, weir or other obstruction or fall, within ten days after service upon him of a copy of an order issued by the director, to remove such obstruct. - - - -The address of the State Board of Fisheries and Game is 2 Wethersfield Avenue, Hartford 15, Connecticut.

Very truly yours,

By: _____
William S. Wise
Director

WSW/jt

Encl.

cc: Tom Clark, Stafford

Mr. Sam Smith, Soil Conservation Service

Mr. John J. Mazzocchi

COPY

JOHN J. MOZZOCHI AND ASSOCIATES
CIVIL ENGINEERS

GLASTONBURY, CONN.
217 HEBRON AVENUE
PHONE MEDFORD 3-9401

PROVIDENCE 3, R. I.
200 DYER STREET
PHONE GASPEE 1-0420

JOHN J. MOZZOCHI

October 23, 1961

ASSOCIATES

OWEN J. WHITE
JOHN LUCHS, JR.
ECTOR L. GIOVANNINI

REPLY TO: Glastonbury

William S. Wise-Director
Water Resources Commission
State Office Building
Hartford 15, Connecticut

Re: Our File No. 57-73-19
Stafford Springs
Flood Detention Reservoirs

Dear Mr. Wise:

On October 20th, I made a final inspection of the four completed flood detention reservoirs which have been constructed by the Department of Agriculture and Natural Resources in Stafford Springs and for which semi-final approval has already been given. This final inspection was to see the results of the seeding operations which had not been accomplished at the time the semi-final approvals had been given.

The four structures are:

- Site No. 2 -- Ellis, Semi-Final Approval September 2, 1960.
- Site No. 3 -- Pomeroy, Semi-Final Approval November 7, 1960.
- Site No. 4 -- Bradway, Semi-Final Approval July 3, 1961.
- Site No. 6 -- Shenipsit, Semi-Final Approval September 2, 1960.

In all four locations the grass cover was found acceptable.

I recommend that Final Permits be issued for these structures.

Very truly yours,


John J. Mozzochi and Associates
Civil Engineers

JJM:hk

FORM D-7

STATE OF CONNECTICUT
WATER RESOURCES COMMISSION
Room 317, State Office Building
Hartford, Connecticut

CERTIFICATE OF APPROVAL

Date November 9, 1961

To: State of Connecticut
Department of Agriculture and
Natural Resources
State Office Building
Hartford, Connecticut

ATTENTION: MR. JOSEPH N. GILL,
COMMISSIONER

NAME OF STRUCTURE: Pomeroy Brook Dam, Site #3

This is to certify that the following construction work:
the construction of an earth dam in accordance with plans and
specifications marked CZ-402 and prepared by the Soil Conservation
Service, U. S. Department of Agriculture

on your property on Pomeroy Brook

in the Town (s) of Stafford

for which construction permit was issued May 22, 1959, has been
completed to the satisfaction of this Commission and that such structure
is approved as of date of this Certificate.

cc: Soil Conservation
Service

WATER RESOURCES COMMISSION

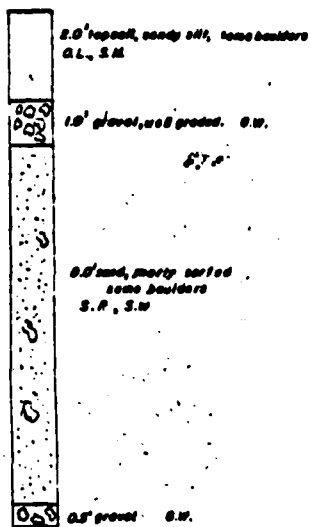
BY:

William S. Wise
William S. Wise, Director

Note: The owner is required by law to record this Certificate in the
land records of the town or towns in which the dam, dike or similar
structure is located.

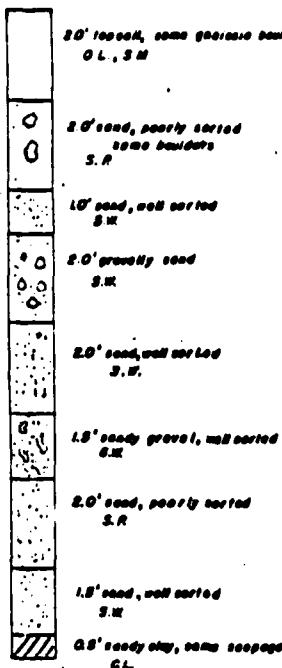
TEST PIT 1

SURFACE ELEV. 681.0



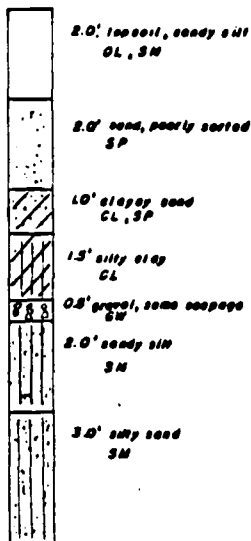
TEST PIT 2

SURFACE ELEV. 670.0



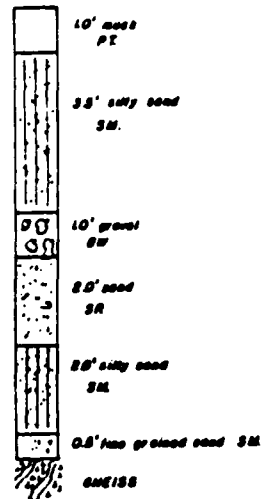
TEST PIT 3

SURFACE ELEV. 6547



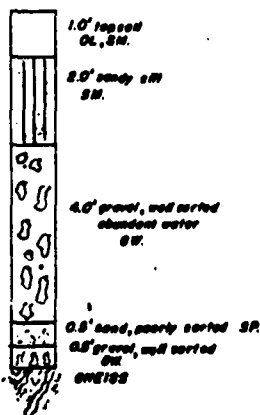
TEST PIT 4

SURFACE ELEV. 649.0



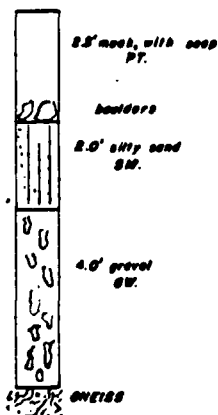
TEST PIT 5

SURFACE ELEV. 647.0



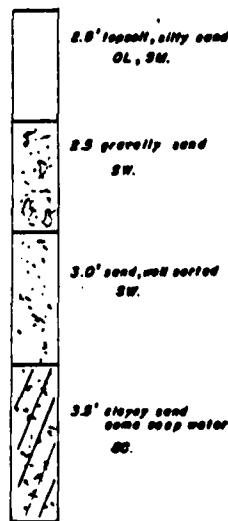
TEST PIT 6

SURFACE ELEV. 647.0



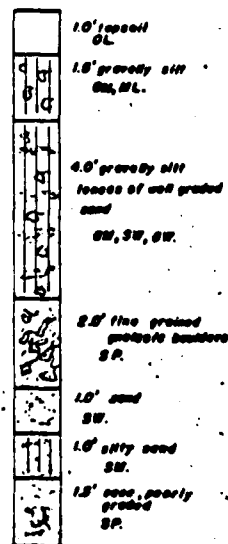
TEST PIT 7

SURFACE ELEV. 660.0



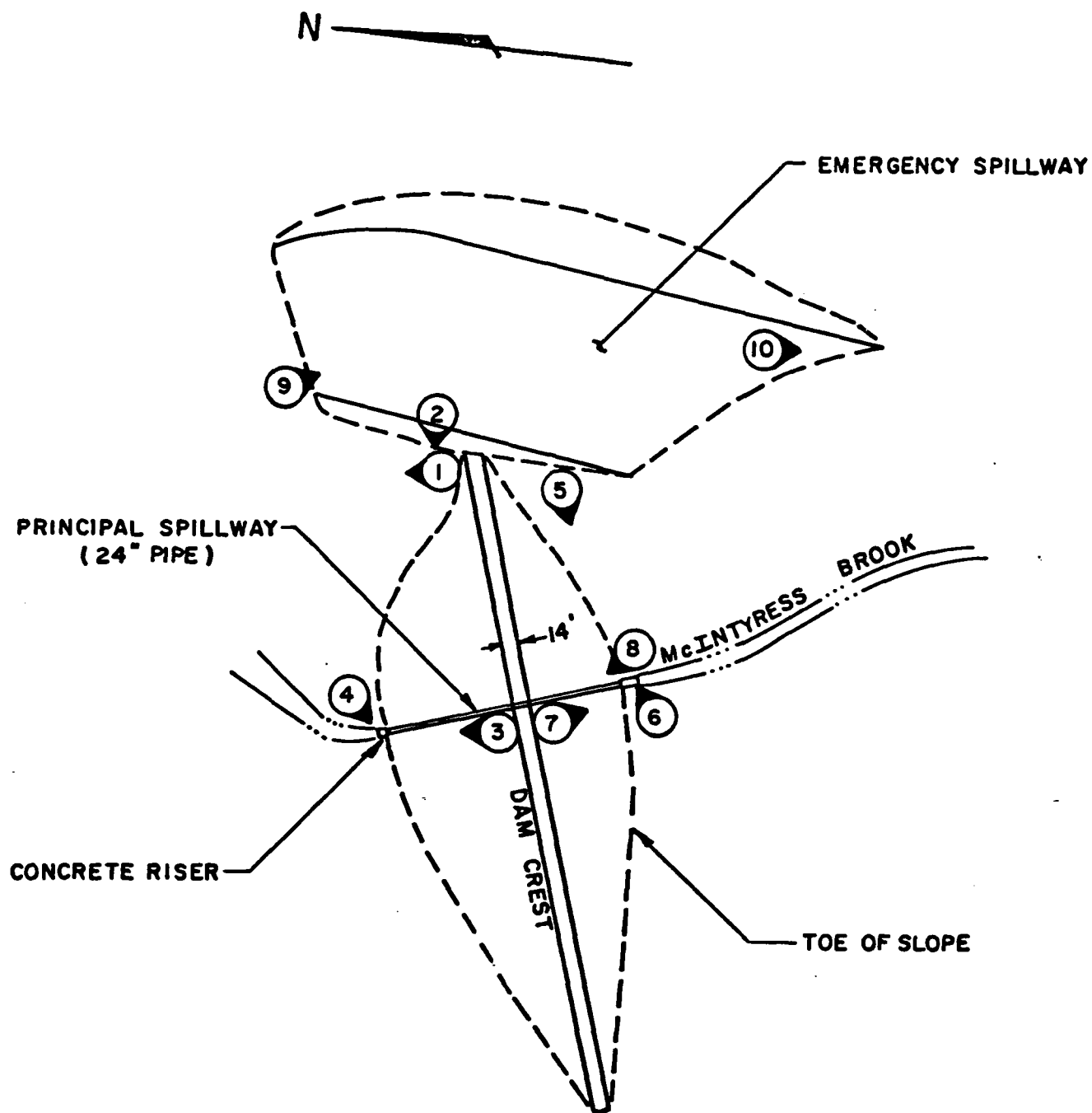
TEST PIT 8

SURFACE ELEV. 673.0



APPENDIX C

PHOTOGRAPHS



GENERAL PLAN

SCALE: 1" = 120' ±

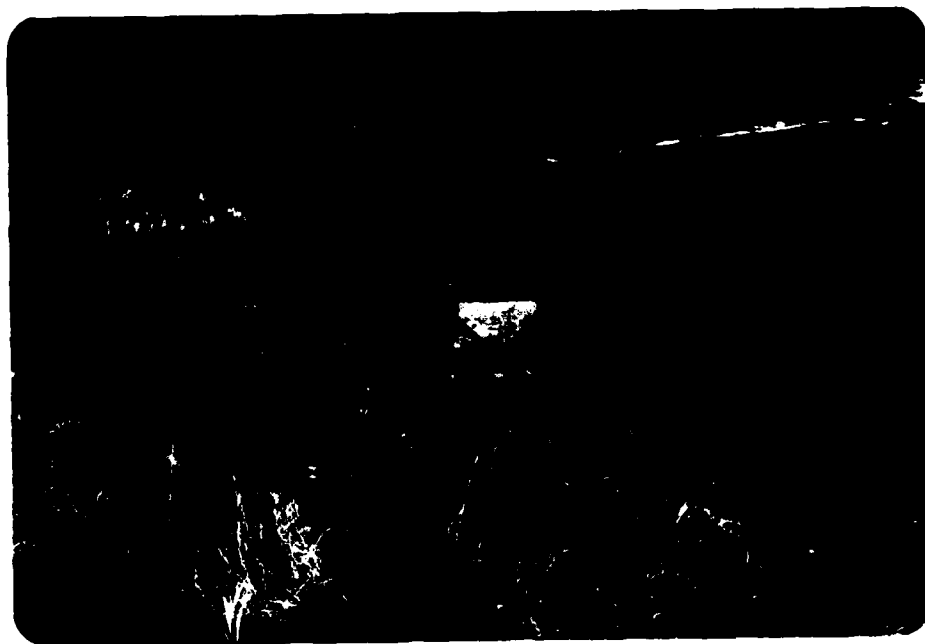
PHOTO INDEX
POMEROY DAM



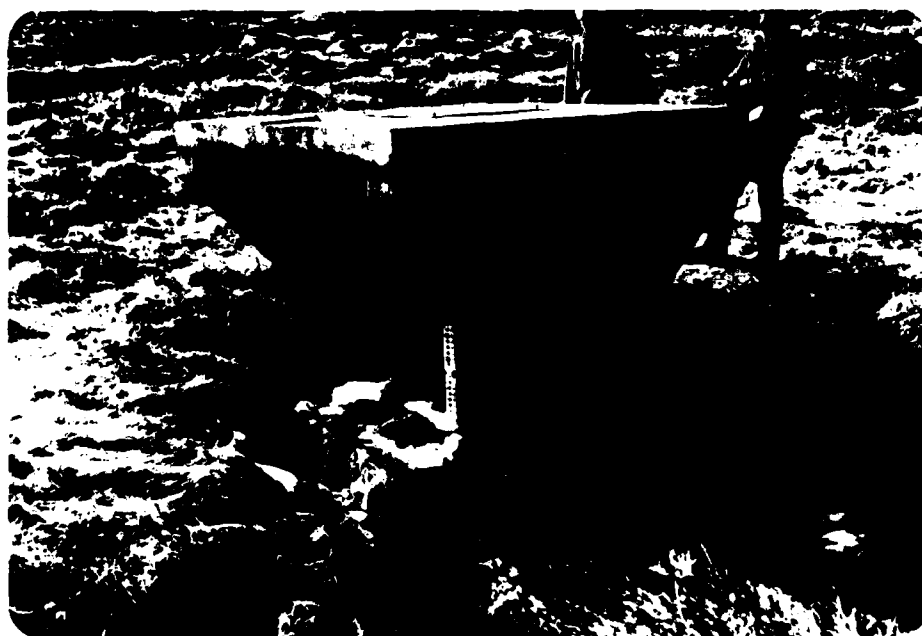
C-1 IDENTIFYING MONUMENT



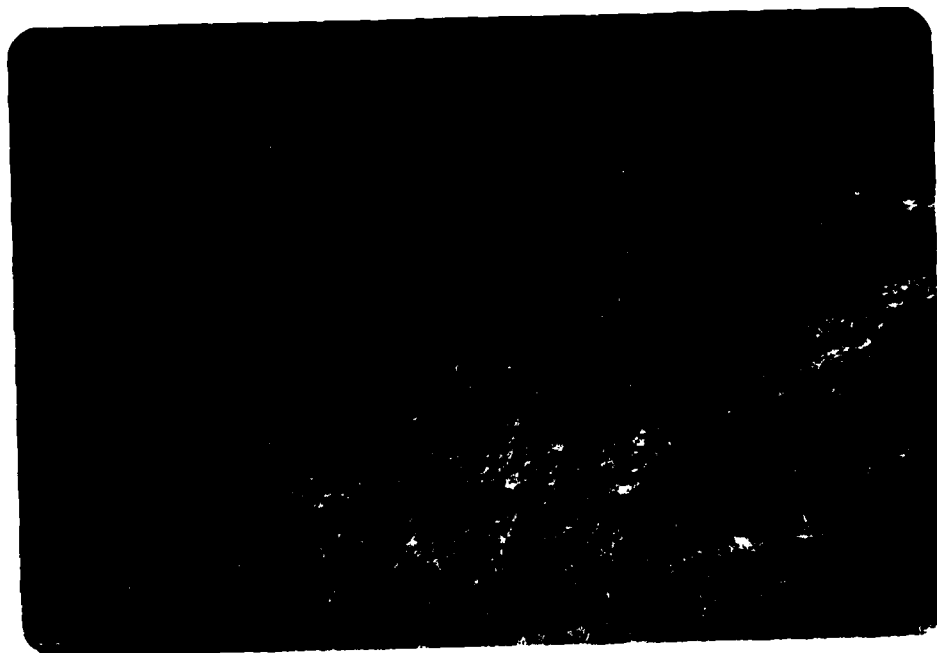
C-2 UPSTREAM SLOPE



C-3 UPSTREAM APPROACH CHANNEL



C-4 PRINCIPAL SPILLWAY INLET STRUCTURE



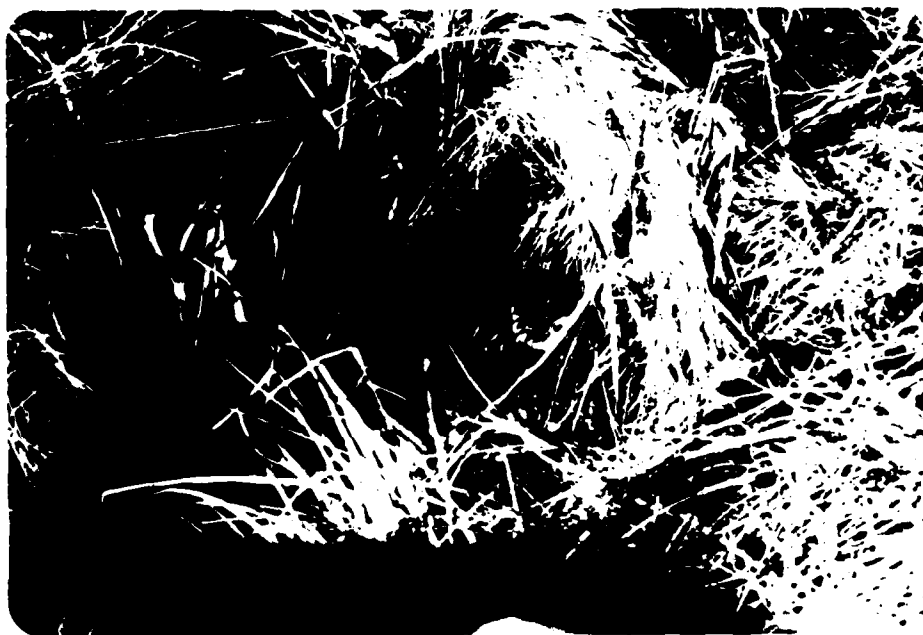
C-5 DOWNSTREAM SLOPE



C-6 PRINCIPAL SPILLWAY OUTLET



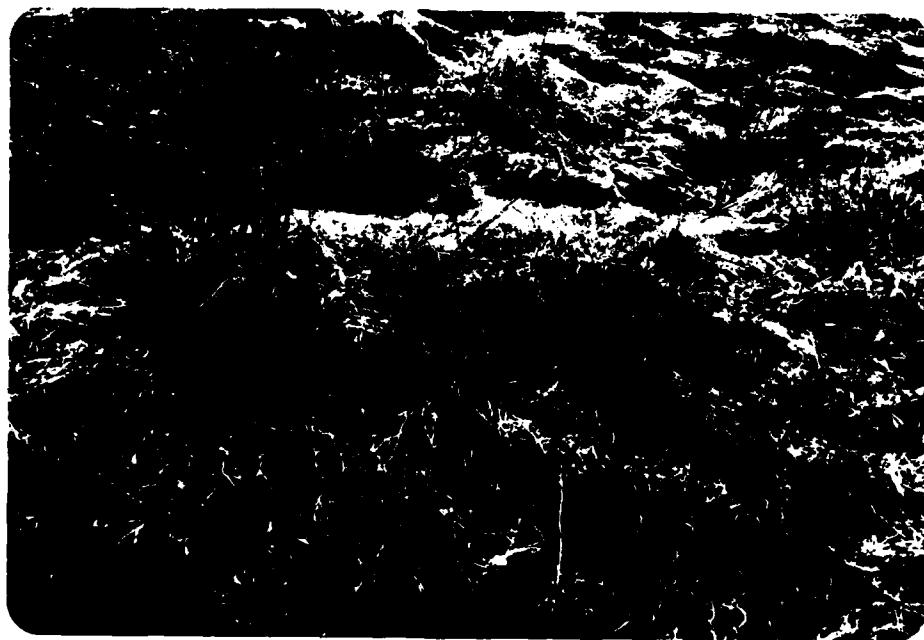
C-7 McINTYRES BROOK DOWNSTREAM OF DAM



C-8 FOUNDATION DRAIN OUTLET



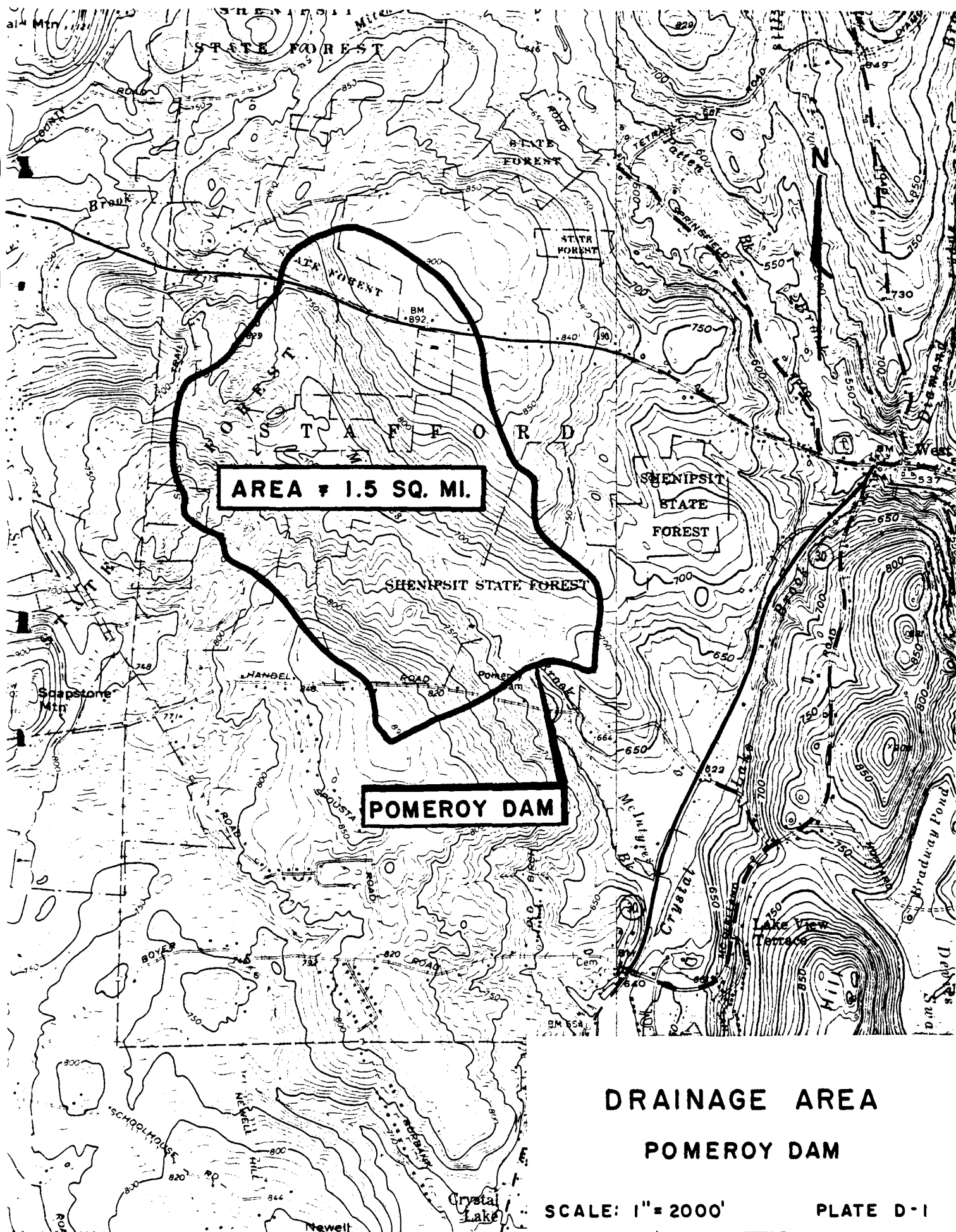
C-9 EMERGENCY SPILLWAY

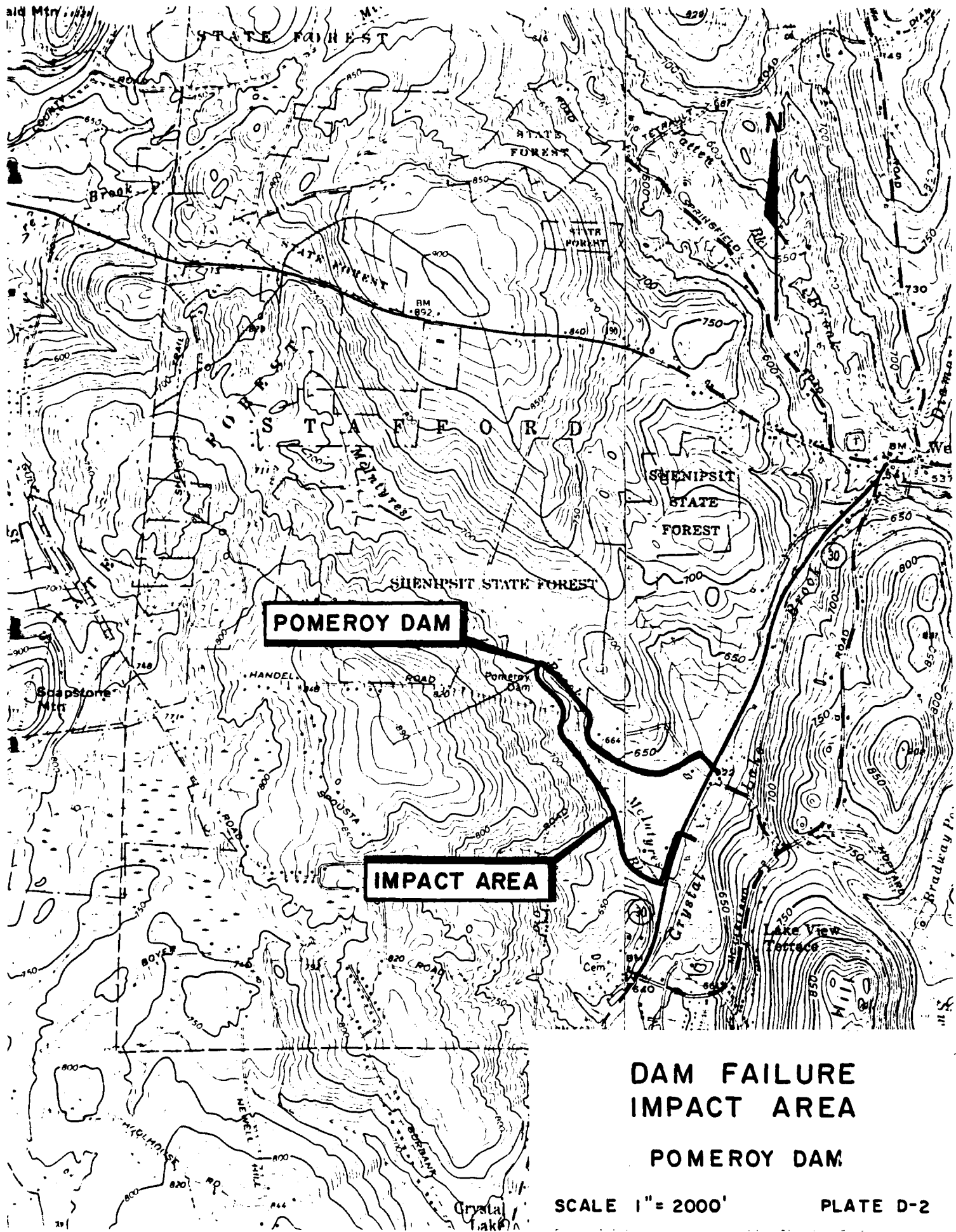


C-10 RODENT BURROW IN EMERGENCY SPILLWAY

APPENDIX D

HYDROLOGIC AND HYDRAULIC
COMPUTATIONS





POMEROY DAM

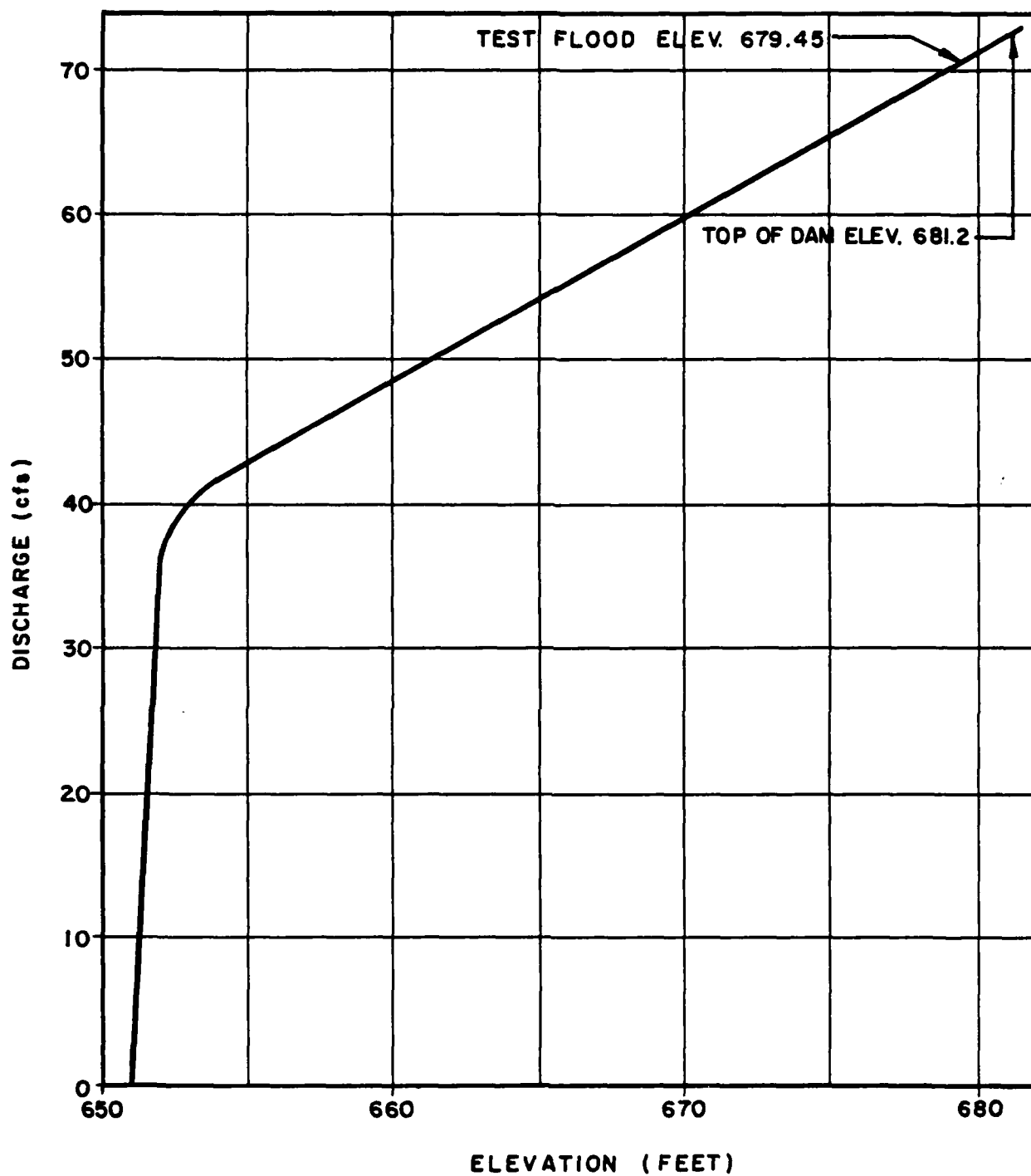
IMPACT AREA

**DAM FAILURE
IMPACT AREA**

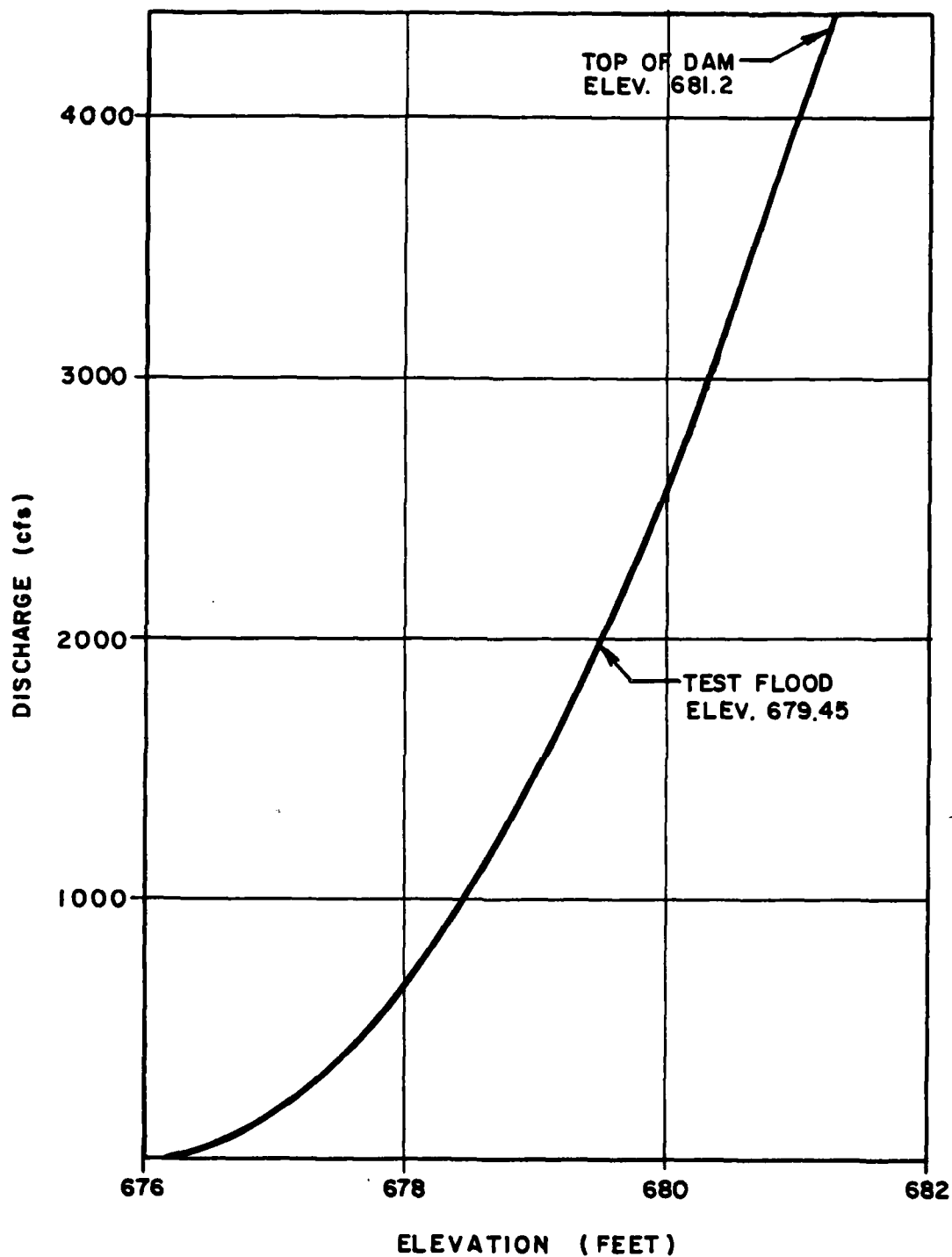
POMEROY DAM

SCALE 1" = 2000'

PLATE D-2



POMEROY DAM
RATING CURVE
PRINCIPAL SPILLWAY
PLATE D-3



POMEROY DAM
RATING CURVE
EMERGENCY SPILLWAY
PLATE D-4



FUSS & O'NEILL
consulting engineers

PREPARED
BY

GJM

DATE

7/20/81

CHECKED
BY

DATE

PROJECT NO.

80-157

SUBJECT: Test Flood - Pomeroon Dam

SHEET NO.

1 of 1

Watershed - Rolling Terrain

Drainage Area - 1.5 sq. Mi.

Per C. of E. Chart PMF = 2300 C.S.M.

Peak Flow = $1.5 \times 2300 = 3450$ cfs = PMF

Peak Flow = $3450 \div 2 = 1725$ cfs = $\frac{1}{2}$ PMF

Peak Flow as calculated by SCS = 3420 cfs.

For TEST FLOOD Use 3420 cfs.



FUSS & O'NEILL
consulting engineers

PREPARED
BY
GJM

DATE
3/17/81

CHECKED
BY

DATE

PROJECT NO.

80-157

SUBJECT: Dam Failure Hydrograph - Pomeroy Dam

SHEET NO.
1 of 6

STAGE-DISCHARGE RATINGS

STATION	SLOPE	n	ELEV.	AREA	p	Q
1+0	0.40%	.040	665	3100	330	31,900
			670	4900	410	59,200
5+0	0.40%	.070	660	3200	310	21,100
			665	5040	410	36,200
			670	7290	510	58,000
10+0	0.38%	.100	655	2060	300	7,700
			660	3810	400	21,700
			665	6380	630	37,000
			670	10,080	850	44,400
15+0	1.2%	.100	645	1250	230	6,300
			650	2550	300	17,400
			655	4350	420	33,900
20+0	1.2%	.080	640	1720	300	11,300
			645	3400	370	30,600
			650	5450	450	58,900
25+0	0.5%	.080	630	650	650	900
			635	4440	860	17,600
			640	9280	1070	52,100
30+0	0.5%	.060	625	800	530	1,900
			629	2580	1270	7,300
			631	7550	2120	31,200
40+0	0.5%	.060	622	600	400	1,400
			625	2400	800	8,800
			628	10,000	1960	52,500



FUSS & O'NEILL
consulting engineers

PREPARED
BY
GJM

DATE
3/11/81

CHECKED
BY

DATE

PROJECT NO.

80-157

SUBJECT: Dam Failure Hydrograph - Pomeroy Dam

SHEET NO.
2 of 6

$$\text{Storage} = S = 460 \text{ Ac. Ft.}$$

$$\text{Test Flood Pool Elevation} = 679.5$$

$$\text{Riverbed Elev. at Sta. 1+0 (at Dam = 0+0)} = 644.0$$

$$\text{Dam Length at Mid Height} = 330'$$

$$\text{Use Breach Width} = 100' = W_b$$

$$Y_0 = 36'$$

$$Q_{p1} = 8/27 W_b \sqrt{g} Y_0^{3/2}$$
$$= 36,300 \text{ cfs}$$

STA. 1+0

$$\text{Stage} = 665.8$$

$$\text{Area} = 3390$$

$$\text{Vol.} = 8 \text{ Ac. Ft.}$$

$$Q_{p2} \text{ Trial} = 36,300 \left(1 - \frac{8}{460}\right) = 35,700 \text{ cfs}$$

$$\text{Stage} = 665.7$$

$$\text{Area} = 3350$$

$$\text{Vol.} = 8 \text{ Ac. Ft.}$$

$$Q_{p2} = 36,300 \left(1 - \frac{8}{460}\right) = 35,700 \text{ cfs}$$

$$\text{Stage} = 665.7$$

$$\underline{\text{Depth} = 21.7'}$$



FUSS & O'NEILL
consulting engineers

PREPARED
BY
GJM

DATE
3/27/81

CHECKED
BY

DATE

PROJECT NO

80-157

SUBJECT: Dam Failure Hydrography - Pomeroy

SHEET NO.
3 of 6

STA. 5+0

$$Q_{p2} = 35,700 \text{ cfs}$$
$$\text{Streambed Elev.} = 642.4$$
$$S = 460 \text{ Ac. Ft.}$$

$$\text{Stage} = 662.0$$
$$\text{Area} = 3,930 \text{ S.F.}$$
$$\text{Vol.} = 36 \text{ Ac. Ft.}$$

$$Q_{p3} \text{ Trial} = 35,700 \left(1 - \frac{36}{460}\right) = 32,900 \text{ cfs}$$

$$\text{Stage} = 661.6$$
$$\text{Area} = 3,790 \text{ S.F.}$$
$$\text{Vol.} = 35 \text{ Ac. Ft.}$$

$$Q_{p3} = 35,700 \left(1 - \frac{36}{460}\right) = 32,900 \text{ cfs}$$

$$\text{Stage} = 661.6$$

$$\text{Depth} = 19.2'$$

STA. 10+0

$$Q_{p3} = 32,900 \text{ cfs}$$
$$\text{Streambed Elev.} = 640.4$$
$$S = 460 \text{ Ac. Ft.}$$

$$\text{Stage} = 663.7$$
$$\text{Area} = 5,690 \text{ S.F.}$$
$$\text{Vol.} = 65 \text{ Ac. Ft.}$$

$$Q_{p4} \text{ Trial} = 32,900 \left(1 - \frac{65}{460}\right) = 28,300 \text{ cfs}$$

$$\text{Stage} = 662.2$$
$$\text{Area} = 4,920 \text{ S.F.}$$
$$\text{Vol.} = 56 \text{ Ac. Ft.}$$

$$Q_{p4} = 32,900 \left(1 - \frac{65}{460}\right) = 28,900 \text{ cfs}$$

$$\text{Stage} = 662.4$$

$$\text{Depth} = 22.0'$$



FUSS & O'NEILL
consulting engineers

PREPARED
BY
GJM

DATE

CHECKED
BY

DATE

PROJECT NO

80-157

SUBJECT: Dam Failure Hydrograph - Pomeroy

SHEET NO.
4 of 6

STA. 15+0

$Q_{pu} = 28,900 \text{ cfs}$
Streambed Elev. = 636
 $S = 460 \text{ Ac-Ft.}$

Stage = 653.5
Area = 3800 S.F.
Vol. = 44 Ac-Ft.

$Q_{p5} \text{ Trial} = 28,900 \left(1 - \frac{44}{460}\right) = 27,000 \text{ cfs}$

Stage = 652.9
Area = 3600 S.F.
Vol. = 41 Ac-Ft.

$Q_{p5} = 28,900 \left(1 - \frac{43}{460}\right) = 27,100 \text{ cfs}$

Stage = 652.9

Depth = 16.9'

STA. 20+0

$Q_{p5} = 27,100 \text{ cfs}$
Streambed Elev. = 630
 $S = 460 \text{ Ac-Ft.}$

Stage = 644.1
Area = 3100 S.F.
Vol. = 36 Ac-Ft.

$Q_{p6} \text{ Trial} = 27,100 \left(1 - \frac{36}{460}\right) = 25,000 \text{ cfs}$

Stage = 643.5
Area = 2910 S.F.
Vol. = 33 Ac-Ft.

$Q_{p6} = 27,100 \left(1 - \frac{35}{460}\right) = 25,000 \text{ cfs}$

Stage = 643.5

Depth = 13.5'



FUSS & O'NEILL
consulting engineers

PREPARED
BY
GJM

DATE

CHECKED
BY

DATE

PROJECT NO.

80-157

SUBJECT: Dam Failure Hydrography - Pomeroy

SHEET NO.
5 of 6

STA. 25+0

$Q_{p6} = 25,000 \text{ cfs}$
Streambed Elev. = 623
 $S = 460 \text{ Ac.-Ft.}$

Stage = 636.1
Area = 5480 S.F.
Vol. = 63 Ac.-Ft.

$Q_{p7} \text{ Trial} = 25,000 \left(1 - \frac{63}{460}\right) = 21,600 \text{ cfs}$

Stage = 635.6
Area = 5000 S.F.
Vol. = 57 Ac.-Ft.

$Q_{p7} = 25,000 \left(1 - \frac{60}{460}\right) = 21,700 \text{ cfs}$

Stage = 635.6

Depth = 7.6'

STA. 30+0

$Q_{p7} = 21,700 \text{ cfs}$
Streambed Elev. = 622
 $S = 460 \text{ Ac.-Ft.}$

Stage = 630.2
Area = 5570 S.F.
Vol. = 64 Ac.-Ft.

$Q_{p8} \text{ Trial} = 21,700 \left(1 - \frac{64}{460}\right) = 18,700 \text{ cfs}$

Stage = 630.0
Area = 4950 S.F.
Vol. = 57 Ac.-Ft.

$Q_{p8} = 21,700 \left(1 - \frac{61}{460}\right) = 18,800 \text{ cfs}$

Stage = 630.0

Depth = 8.0'



FUSS & O'NEILL
consulting engineers

PREPARED
BY
GJM

DATE

CHECKED
BY

DATE

PROJECT NO.

80-157

SUBJECT: Dam Failure Hydrography - Pomeroy

SHEET NO.
6 of 6

STA. 40+0

$Q_{ps} = 18,800 \text{ cfs}$
Streambed Elev. = 619
 $S = 460 \text{ AC-FT.}$

Stage = 625.7
Area = 4140 S.F.
Vol. = 95 AC-FT.

$Q_{pq} \text{ Trial} = 18,800 \left(1 - \frac{95}{460}\right) = 14,900 \text{ cfs}$

Stage = 625.4
Area = 3460 S.F.
Vol. = 79 AC-FT.

$Q_{pa} = 18,800 \left(1 - \frac{87}{460}\right) = 15,200 \text{ cfs}$

Stage = 625.4

Depth = 6.4'

Joins Crystal Lake Brook

APPENDIX E

INFORMATION AS CONTAINED IN
THE NATIONAL INVENTORY OF DAMS

NOT AVAILABLE AT THIS TIME

END